

HMX-H100N
HMX-H104BN
HMX-H105BN
HMX-H106SN

High Definition Digital Camcorder user manual



imagine the possibilities

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your product at

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SAMSUNG

key features of your HD camcorder

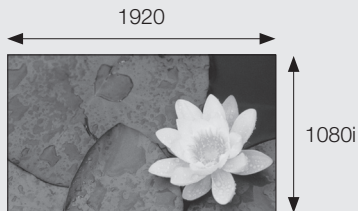
The HD camcorder is capable of recording and playing back both Full HD (high definition: 1920x1080) and Standard Definition (SD) image quality. Select the recording image quality, Full HD (high definition) or SD (standard definition), before recording.

ENJOYING IMAGES WITH FULL HIGH DEFINITION (HD) QUALITY

You can view recorded movies with Full HD (high definition) image quality.

- This HD camcorder offers 1080i resolution with a sharper image than previous SD camcorders (480i). It also supports widescreen recording with an aspect ratio of 16:9.
- Recordings made in Full HD (high definition) image quality will fit widescreen (16:9) HDTVs. If your TV is not a high definition TV, movies with HD (high definition) image quality will be displayed with SD (standard definition) image quality.
 - To enjoy Full HD-quality images, you will need a TV supporting 1920x1080i input. (Refer to the user manual of your TV.)
 - To enjoy HD-quality images, use an HDMI (optional) or Component/AV (Y/P_B/P_R, Audio L/R) cable. When using the Component/AV cable in a regular video connection (Video, Audio L/R) to your TV, HD-quality images cannot be viewed and are down-converted to SD (Standard Definition).
- The image is recorded in 720x480p when the quality is set to SD in the HD camcorder. Movies recorded at SD (standard definition) image quality cannot be converted to HD (high definition).

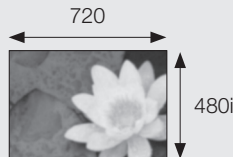
**Full HD (high definition) image quality:
60i (interlaced)**



<1080i / 16:9 Full high definition camcorder>

Image resolution: about 6 times that of previous SD camcorders (480i).

**SD (standard definition) image quality:
60i (interlaced)**



<480i / normal digital camcorder>

FEATURES OF YOUR NEW HD CAMCORDER

2.2 Mega pixel (Gross) CMOS sensor

1/4.1" CMOS sensor provides stunning detail and clarity with exceptional video (1920 lines of horizontal resolution-HD mode or 720 lines of horizontal resolution-SD mode) and still image performance (4.6 mega pixels).

Unlike traditional CCD imagers, CMOS sensors require less power, providing better battery performance.

SSD (SOLID STATE DRIVE) adopted as built-in storage media (HMX-H104BN/HMX-H105BN/HMX-H106SN only)

SSD based on flash memory has been adopted as built-in memory for the camcorder.

SSD helps the camcorder boot, read data and operate the software much faster than normal HDD (Hard Disk Drives).

Also, SSD is very stable, durable and makes less noise while in operation. It is environment-friendly because low electric power is required.

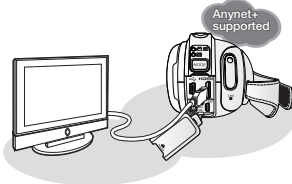
H.264 (MPEG4 part10/AVC) encoding

The latest video compression technology, H.264 uses a high compression rate to sharply increase the recordable time with the same size storage.

HDMI interface (Anynet+ supported)

- If you have an HDTV with an HDMI jack, you can enjoy a clearer and sharper image when compared to a standard definition TV.
- This HD camcorder supports Anynet+.

Anynet+ is an AV network system that enables you to control all connected Samsung AV devices with an Anynet+ supported Samsung TV remote control. Refer to the corresponding TV's user manual for more details.



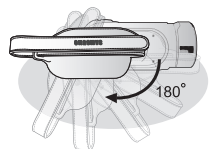
2.7" wide (16:9) touch panel LCD screen (230K pixels)

The 2.7" wide (16:9) LCD screen provides excellent viewing clarity with improved resolution. The 230K pixel LCD screen rotates up to 270 degrees for multiple viewing angles providing sharp, detailed images for monitoring or playback, and the widescreen format makes shooting in 16:9 mode and composing shots even easier.



Touch panel adopted

You can play recorded images and set functions by simply tapping on the LCD screen.



Swivel handle for free style shooting





You can adjust the swivel handle's angle up to 180° to suit the recording situation.

Built-in editing software (Intelli-studio)

Editing software is stored in this camcorder. Connecting the camcorder to a Windows computer using USB cable runs the editing software application. The application enables playback, editing and sharing of the recordings.

safety warnings




What the icons and signs in this user manual mean;

 WARNING	Means that death or serious personal injury is a risk.
 CAUTION	Means that there is a potential risk for personal injury or material damage.
 CAUTION	To reduce the risk of fire, explosion, electric shock, or personal injury when using your HD camcorder, follow these basic safety precautions:
	Means hints or referential pages that may be helpful when operating the HD camcorder.

These warning signs are here to prevent injury to you and others.

Please follow them explicitly. After reading this section, keep it in a safe place for future reference.

important safety instructions

 CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN		This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

Warning

To Reduce The Risk Of Fire Or Electric Shock, Do Not Expose This Apparatus To Rain Or Moisture.”

Caution

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. To disconnect the apparatus from the mains, the plug must be pulled out from the mains socket, therefore the mains plug shall be readily operable.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachment/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
16. VENTILATION:
Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the CAMCORDER and to protect it from overheating. These openings must not be blocked or covered. Never place your CAMCORDER on a bed, sofa, rug, or other similar surface: on or near a radiator or heat register. This CAMCORDER should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.



important safety instructions

17. POWER SOURCES:

The CAMCORDER should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supply at your home, consult your appliance dealer or local power company. A CAMCORDER is intended to be operated from battery power, or other sources, refer to the operating instructions.

18. GROUNDING OR POLARIZATION:

This CAMCORDER may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your outlet. Do not defeat the safety purpose of the polarized plug.

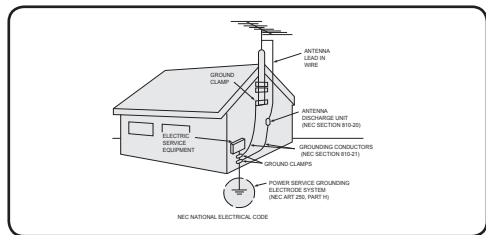
19. POWER-CORD PROTECTION:

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords or plugs, convenient receptacles, and the point where they exit from the unit.

20. OUTDOOR ANTENNA GROUNDING:

CAMCORDER, be sure the antenna or cable system is grounded to provide some protection against voltage surges and built-up static charges, Section 810 of the National Electrical Code, ANSI/NFPA No.

70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire and supporting structure, grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding to conductors, location of antenna-discharge unit, connection to grounding electrodes and requirements for the grounding electrode.



See figure below.

21. LIGHTNING:

For added protection of this CAMCORDER during a lightning storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the CAMCORDER due to lightning and powerline surges.

22. POWER LINES:

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

23. OVERLOADING:

Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

24. OBJECTS AND LIQUIDS:

Never push objects of any kind into this CAMCORDER through openings as they may touch dangerous voltage points or short out a part that could result in a fire or electric shock. Never spill liquids of any kind onto the CAMCORDER. Should spillage occur, unplug unit and have it checked by a technician before use.

25. SERVICING:

Do not attempt to service this CAMCORDER yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

26. DAMAGE REQUIRING SERVICE:

Unplug this CAMCORDER from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If any liquid has been spilled onto, or objects have fallen into the CAMCORDER.
- c. If the CAMCORDER has been exposed to rain or water.
- d. If the CAMCORDER does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the CAMCORDER to its normal operation.
- e. If the CAMCORDER has been dropped or the cabinet has been damaged.
- f. When the CAMCORDER exhibits a distinct change in performance, this indicates a need for service.

27. REPLACEMENT PARTS:

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer and having the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

28. SAFETY CHECK:

Upon completion of any service or repairs to this CAMCORDER, ask the service technician to perform safety checks to determine that the CAMCORDER is in safe operating order.

important safety instructions

29. To prevent damage which may result in fire or shock hazard, do not expose this appliance to rain or moisture.
30. If this power supply is used at 240V ac, a suitable plug adaptor should be used.
31. This product is covered by one or more of the following U.S. patents:
5,060,220 5,457,669 5,561,649 5,705,762 5,987,417
6,043,912 6,222,983 6,272,096 6,377,524 6,377,531
6,385,587 6,389,570 6,408,408 6,466,532 6,473,736
6,477,501 6,480,829 6,556,520 6,556,521 6,556,522
6,578,163 6,594,208 6,631,110 6,658,588 6,674,697
6,674,957 6,687,455 6,697,307 6,707,985 6,721,243
6,721,493 6,728,474 6,741,535 6,744,713 6,744,972
6,765,853 6,765,853 6,771,890 6,771,891 6,775,465
6,778,755 6,788,629 6,788,630 6,795,637 6,810,201
6,862,256 6,868,054 6,894,963 6,937,552

USER INSTALLER CAUTION:

Your authority to operate this FCC certified equipment could be voided if you make changes or modifications not expressly approved by this party responsible for compliance to part 15 FCC rules.

NOTE:

- (Hg) LAMP(S) INSIDE THIS PRODUCT CONTAIN MERCURY AND MUST BE RECYCLED OR DISPOSED OF ACCORDING TO LOCAL, STATE OR FEDERAL LAWS. For details see lamprecycle.org, eiaa.org, or call 1-800-Samsung (7267864)

CALIFORNIA USA ONLY

This Perchlorate warning applies only to primary CR (Manganese Dioxide) Lithium coin cells in the product sold or distributed ONLY in California USA

“ Perchlorate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate.”

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful: “How to Identify and Resolve Radio-TV Interference Problems.”

This Booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

This device complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions;

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

precautions

Warning!

- This camcorder should always be connected to an AC outlet with a protective grounding connection.
- Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

Caution

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

If this power supply is used at 240V ac, a suitable plug adapter should be used.

important information on use

BEFORE USING THIS CAMCORDER

- **This HD camcorder records video in H.264 (MPEG4 part10/AVC) format and in High (HD-VIDEO) and Standard resolution (SD-VIDEO).**
- **Please note that this HD camcorder is not compatible with other digital video formats.**
- **Before recording important video, make a trial recording.**
Play back your trial recording to make sure the video and audio have been recorded properly.
- **The recorded contents cannot be compensated for:**
 - Samsung cannot compensate for any damage caused when a recording cannot be played back because of a defect in the HD camcorder or memory card.
Samsung cannot be responsible for your recorded video and audio.
 - Recorded contents may be lost due to a mistake when handling this HD camcorder or memory card, etc. Samsung shall not be responsible for compensation for damages due to the loss of recorded contents.
- **Make a backup of important recorded data**
Protect your important recorded data by copying the files to a PC. We also recommend you copy it from your PC to other recording media for storage. Refer to the software installation and USB connection guide.

- **Copyright: Please note that this HD camcorder is intended for individual use only.**

Data recorded on the storage media in this HD camcorder using other digital/analog media or devices is protected by the copyright act and cannot be used without permission of the owner of copyright, except for personal enjoyment. Even if you record an event such as a show, performance or exhibition for personal enjoyment, it is strongly recommended that you obtain permission beforehand.

ABOUT THIS USER MANUAL








- Thank you for purchasing this Samsung Camcorder. Please read this user manual carefully before you use the camcorder and keep it handy for future reference. Should your camcorder fail to operate correctly, refer to Troubleshooting. ➡ page 119
- This User Manual covers models HMX-H100N, HMX-H104BN, HMX-H105BN, and HMX-H106SN.
The HMX-H104BN, HMX-H105BN, and HMX-H106SN have a 16GB, 32GB, and 64GB built-in flash memory respectively but also use memory cards.
The HMX-H100N does not have built-in flash memory and uses memory cards exclusively.
Although some features of HMX-H100N, HMX-H104BN, HMX-H105BN, and HMX-H106SN are different, they operate in the same way.
- Illustrations of model HMX-H105BN are used in this user manual.
- The screenshots are from Windows XP. The screens may vary depending on the operating system of the computer.
- The displays in this user manual may not be exactly the same as those you see on the LCD screen.
- Designs and specifications of the camcorder and other accessories are subject to change without any notice.
- The following terms are used in this manual:
 - The terms 'video' and 'movie images' refer to one video unit from the point you press the **Record start/stop** button to start recording until you press again to pause the recording.
 - The terms 'photo' and 'still image' are used interchangeably with the same meaning.

NOTES REGARDING TRADEMARKS

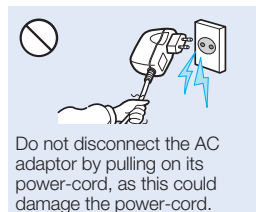
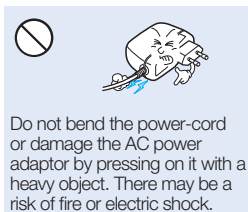
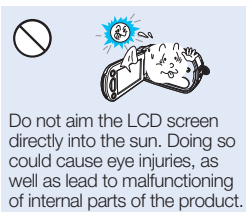
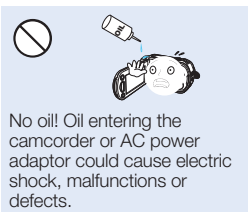
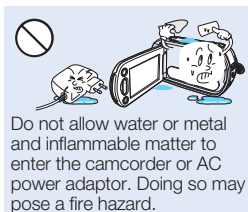
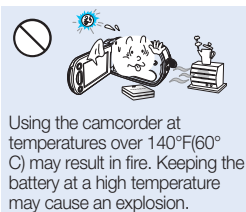
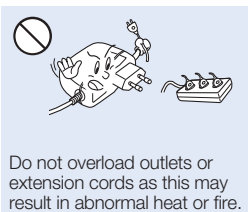
- All the trade names and registered trademarks mentioned in this manual or other documentation provided with your Samsung product are trademarks or registered trademarks of their respective holders.
- Windows® is registered trademark or trademark of Microsoft Corporation, registered in the United States and other countries.
- YouTube® is a trademark of Google Inc.
- Flickr® is a trademark of Yahoo.
- All the other product names mentioned here in may be the trademark or registered trademarks of their respective companies.
- Furthermore, "TM" and "R" are not mentioned in each case in this manual.

precautions when using

The safety precautions illustrated below are to prevent personal injury or material damages. Heed all instructions carefully.

-  **WARNING**
Means that death or serious personal injury is a risk.
-  Prohibited action.
-  Do not touch the product.
-  Unplug from the power supply.
-  **CAUTION**
Means that there is a potential risk for personal injury or material damage.
-  Do not disassemble the product.
-  This precaution must be kept.

WARNING





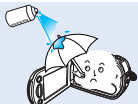
Do not use the AC adaptor if it has damaged, split or broken cords or wires. Doing so may cause fire or electric shock.



Do not connect the AC adaptor unless the plug can be fully inserted with no part of the blades exposed.



Do not dispose of battery pack in a fire as it may explode.



Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the camcorder.



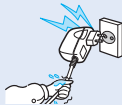
Keep the camcorder away from water when used near the beach or pool or when it rains. There is a risk of malfunction or electric shock.



Keep the used lithium battery or memory card out of the reach of children. If the lithium battery or memory card is swallowed by children, consult physician immediately.



Do not attempt to disassemble, repair, or reform the camcorder or the AC adaptor to avoid a risk of fire or electric shock.



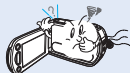
Do not plug or unplug the power cord with wet hands. There is a risk of electric shock.



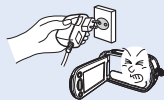
Keep the power-cord unplugged when not in use or during lightning storms to prevent fire hazard.



When cleaning the AC adaptor, unplug the power-cord to avoid a risk of a malfunction or electric shock.



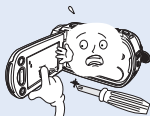
If the camcorder makes an abnormal sound, or smell or smokes, unplug the power-cord immediately and request service from a Samsung service center. There is a risk of fire or personal injury.



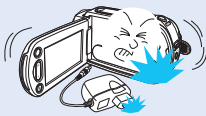
If the camcorder malfunctions, detach immediately the AC adaptor or battery from the camcorder to avoid fire or injury.

precautions when using

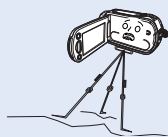
⚠ CAUTION



Do not press the surface of the LCD with force, or hit it with a sharp object. If you push the LCD surface, display unevenness may occur.



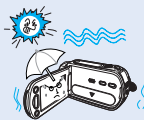
Do not drop or expose the camcorder, battery pack, AC adaptor or other accessories to severe vibrations or impact. This may cause a malfunction or injury.



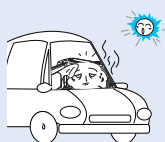
Do not use the camcorder on a tripod (not supplied) in a place where it is subject to severe vibrations or impact.



Do not use the camcorder near direct sunlight or heating equipment. This will especially shorten the operation range of the remote control which uses infrared rays.



Do not expose the camcorder to sand or water when recording at the beach or pool, or recording on a rainy day. Doing so may cause a malfunction or electric shock.



Do not leave the camcorder in a closed vehicle where the temperature is very high for a long time.



Do not expose the camcorder to soot or steam. Thick soot or steam could damage the camcorder case or cause a malfunction.



Do not use the camcorder near dense exhaust gas generated by gasoline or diesel engines, or corrosive gas such as hydrogen sulphide. Doing so may corrode the external or internal terminals, disabling normal operation.



Do not expose the camcorder to insecticide. Insecticide entering the camcorder could fail the product to operate normally. Turn the camcorder off and cover it with vinyl sheet, etc. before using insecticide.



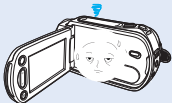
Do not expose the camcorder to sudden changes in temperature or a humid place. There is also a risk of defect or electric shock when using outdoors during lightning storms.



Do not place the camcorder with the open LCD screen down.



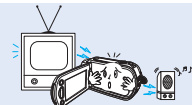
Do not wipe the camcorder body with benzene or thinner. The exterior coating could peel off or the case surface could deteriorate.



Do not leave the LCD monitor open when not using the camcorder.



Do not hold the camcorder by the LCD monitor when lifting it. LCD monitor could detach and the camcorder may fall.



Do not use the camcorder near TV or radio. This could cause noise on the TV screen or in radio broadcasts.



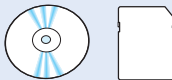
Do not use the camcorder near strong radio waves or magnetism such as speakers and a large motor. Noise could enter video or audio that are being recorded.



Use Samsung-approved accessories only. Using products from other manufacturers may cause overheating, fire, explosion, electric shock or personal injuries caused by abnormal operation.



Place the camcorder on a stable surface and a place with ventilation openings.



Keep important data separately. Samsung is not responsible for data loss.

QUICK START GUIDE

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WARRANTY

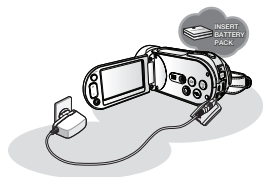
quick start guide

This quick start guide introduces the basic operation and features of your camcorder. See the reference pages below for more information.

Step 1

Preparation

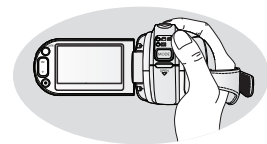
- Charging the battery pack. ↪ page 14
- Setting the date/time and the OSD language. ↪ pages 25-26
- Setting the storage media (built-in memory or memory card). (HMX-H104BN/HMX-H105BN/HMX-H106SN only) ↪ page 27



Step 2

Recording

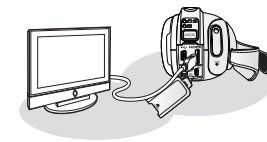
- Recording movie or photo images. ↪ pages 32, 34



Step 3

Playing back

- Selecting an image to play back from the thumbnail index views. ↪ pages 42, 45
- Viewing playback from your HD camcorder on your TV or PC. ↪ pages 48, 107



Step 4

Connecting to a PC

- You can play back and edit recorded movies or photos by using the built-in editing software (Intelli-studio) on your camcorder. Also, using Intelli-studio allows easy upload of recorded movies or photo files to YouTube or Flickr. ➡page 109



Step5

Easy Upload to YouTube or Flickr

- You can upload recorded movies or photos to YouTube or Flickr using Intelli-studio. ➡page 109



getting to know your HD camcorder

WHAT'S INCLUDED WITH YOUR HD CAMCORDER

Your new HD camcorder comes with the following accessories. If any of these items is missing from your box, call Samsung's Customer Care Center.

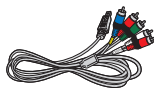
✱ The exact appearance of each item may vary by model.



Battery pack
(IA-BP85NF)
(AD43-00188A)



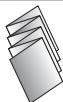
AC power adaptor
(AA-E9 type)
(AD44-00116B)



Component/AV cable
(AD39-00142D)



USB cable
(AD39-00132D)



Quick start guide
(AD68-03496A)



**Remote control & button
type battery (CR2025)**
(AD59-00169A)



User manual CD
(AD46-00224A)

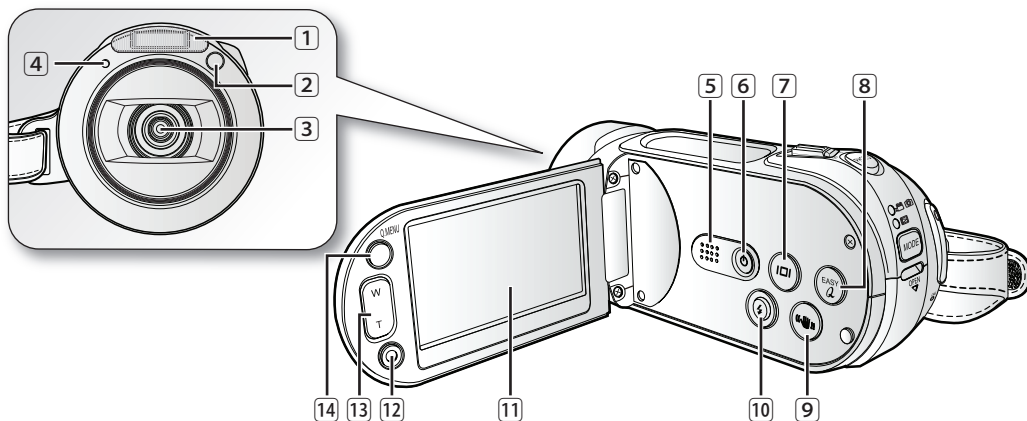


HDMI cable (Optional)
(AD39-00159A)



- The contents may vary depending on the sales region.
- Parts and accessories are available for purchase at your local Samsung dealer. To buy these, contact your nearest Samsung dealer. However, IA-BP85NF is not available from retailers. Use IA-BP85ST when purchasing the battery pack separately.
- A memory card is not included. See page 30 for memory cards compatible with your HD camcorder.
- Your HD camcorder includes the user manual CD and quick start guide (printed). For more detailed instructions, refer to the user manual (PDF) on the provided CD.

FRONT & LEFT VIEW



1 Built-in flash

2 Remote control sensor

3 Lens

4 Recording indicator

5 Built-in speaker

6 Power (⏻) button

7 Display (⏏) button

8 EASY Q button

9 Anti-Shake (OIS) (Ⓜ) button

10 Flash (⚡) button

11 TFT LCD screen (touch panel)

12 Recording start/stop button

13 Zoom (W/T) button

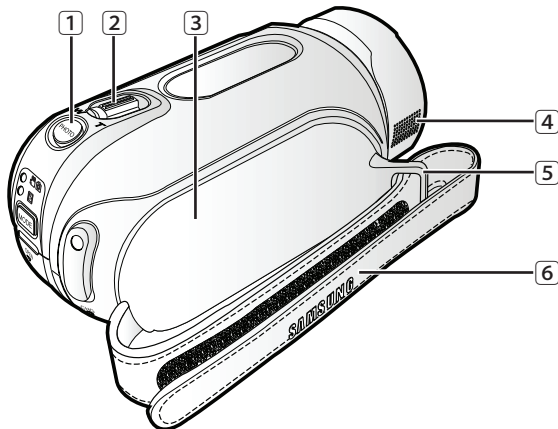
14 Q.MENU button



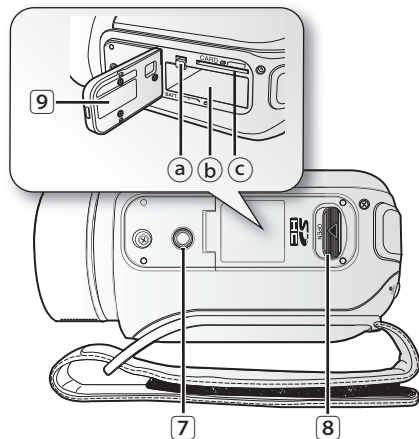
Be careful not to cover the lens during recording.

getting to know your HD camcorder

RIGHT & TOP / BOTTOM VIEW



- 1 PHOTO button
- 2 Zoom (W/T) lever
- 3 Swivel handle
- 4 Internal microphone
- 5 Grip belt hook
- 6 Grip belt

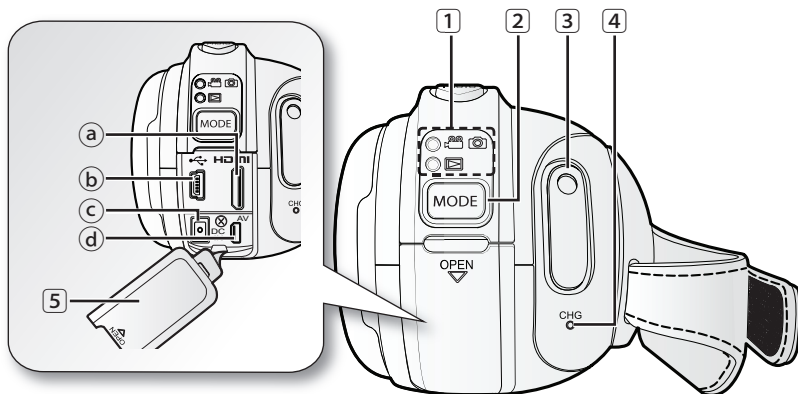


- 7 Tripod receptacle
- 8 OPEN switch
- 9 Battery pack/Memory card cover
 - a Battery pack release switch
 - b Battery pack slot
 - c Memory card slot



Be careful not to cover the internal microphone during recording.

REAR VIEW



1 Mode indicator

: Record mode (Movie/Photo)

: Play mode

2 MODE button

3 Recording start/stop button

4 CHG (charging) indicator

5 Jack cover

a HDMI jack

b USB jack

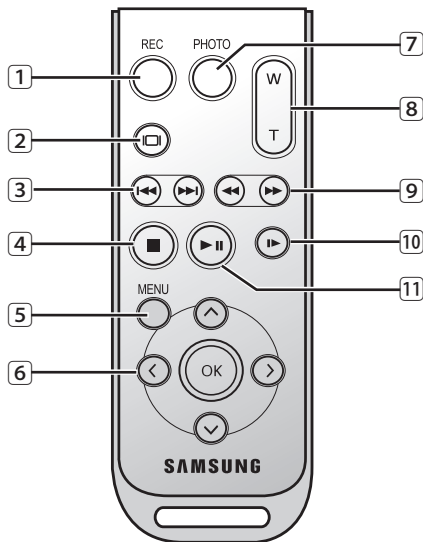
c DC IN jack

d COMPONENT / AV jack

preparation

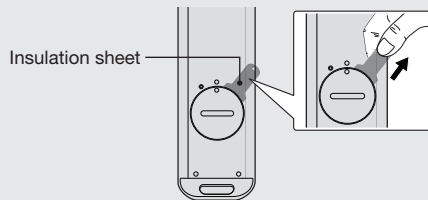
This section provides information on using this HD camcorder; such as how to use the provided accessories, how to charge the battery, how to setup the operation mode and initial setup.

USING THE REMOTE CONTROL



- 1 REC (Recording start/stop) button
- 2 Display (Ⓢ) button
- 3 Skip (⏮/⏭) button
- 4 Stop (⏹) button
- 5 MENU button
- 6 Control (⬅/➡/⬅/➡/Ⓢ) buttons
- 7 PHOTO button
- 8 Zoom (W/T) button
- 9 Search (⏮/⏭) button
- 10 Slow playback (⏪) button
- 11 Play/Pause (⏩) button

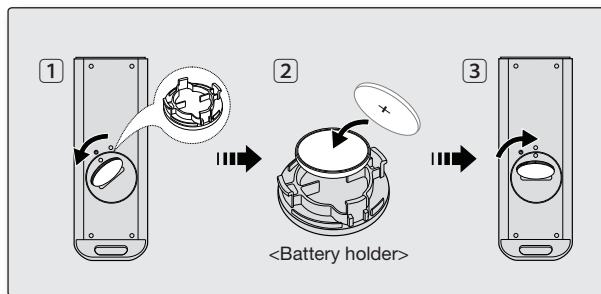
Remove the insulation sheet before using the remote control!



The buttons on the remote control function the same as those on the HD camcorder.

Installing the button type battery (CR2025) in the remote control

1. Turn the battery holder counter clockwise (as indicated with (⊙) mark) using your fingernail or a coin to open it.
 - The battery holder opens.
2. Insert the battery into the battery holder with the positive (+) terminal facing down and press it firmly until you hear a locking sound.
3. Place the battery holder back in the remote control, match its (○) mark with the (⊙) mark on the remote control, and turn the battery holder clockwise to lock it.



Precautions regarding the button type battery

- There is a danger of explosion if the button type battery is incorrectly replaced. Replace only with the same or equivalent type.
- Do not pick up the battery using tweezers or other metal tools. This will cause a short circuit.
- Do not recharge, disassemble, heat or immerse the battery in water, to avoid the risk of explosion.



Keep the button type battery out of the reach of the children.
Should any battery be swallowed, consult a doctor immediately.

preparation

HOLDING THE HD CAMCORDER

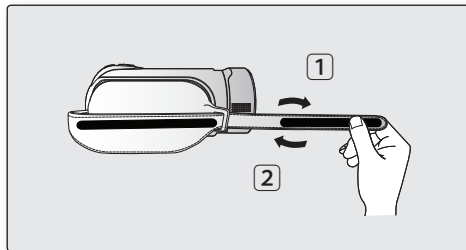
Attaching the grip belt

Adjust the length of grip belt so that the HD camcorder is stable when you press the **Recording start/stop** button with your thumb.



WARNING

Please note if the hand strap is adjusted too tight and you use excessive force to insert your hand, the hand strap hook of the camcorder may be damaged.



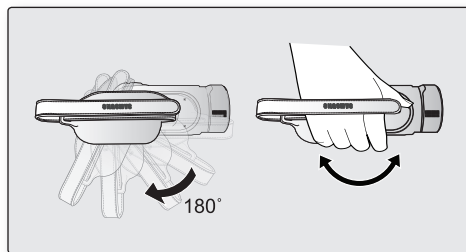
Angle adjustment

Rotate the swivel handle to the most convenient angle. You can rotate it downward from 0° to 180°.



WARNING

Please be careful not to turn the swivel handle backward as it may cause damage.

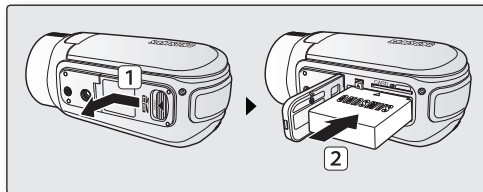


CHARGING THE BATTERY PACK

- Use the **IA-BP85NF** or **IA-BP85ST** battery pack only.
- The battery pack may be charged a little at the time of purchase.
- Be sure to charge the battery pack before you start using your HD camcorder.

Inserting the battery pack

1. Open the battery pack cover by sliding the **OPEN** switch to the left as shown in the figure.
2. Insert the battery pack into the battery pack slot until it softly clicks.
 - Make sure that **SAMSUNG** logo is facing up and the camcorder is placed as shown in the figure.
3. Close the battery pack cover.

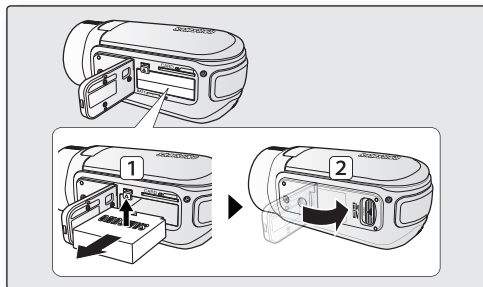


Ejecting the battery pack

1. Slide the **Battery pack release** switch and pull out the battery pack.
 - Gently slide the **Battery pack release** switch in the direction as shown in the figure.
2. Close the battery pack cover.



- Additional battery packs are available at your local Samsung dealer.
- If the HD camcorder will not be in use for a while, remove the battery pack from the HD camcorder.



Use only Samsung-approved battery packs.

Do not use batteries from other manufacturers because, there is a danger of overheating, fire or explosion. Samsung is not responsible for problems occurring due to using unapproved batteries.

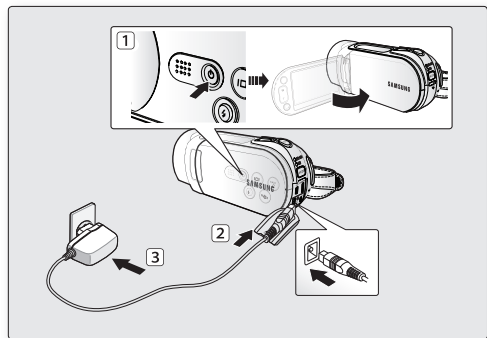
preparation

Charging the battery pack

1. Press the **Power** (⏻) button for about 1 second to turn off the power and close the LCD screen.
2. Open the jack cover and connect the AC power adaptor to the DC IN jack.
3. Connect the AC power adaptor to a wall socket.
4. Once charged, disconnect the AC power adaptor from the DC IN jack on your HD camcorder.
 - Even with the power switched off, the battery pack will still discharge if it is left inserted in the HD camcorder.



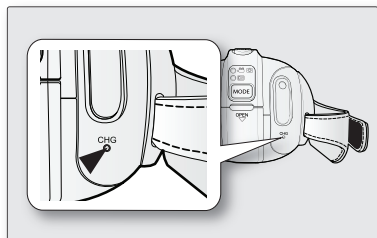
- It is recommended you purchase one or more additional battery packs to allow continuous use of your HD camcorder.
- The battery pack is not charged during the power saving mode, which may keep the mode indicator on or flashing. Open the LCD screen and press the **Power** (⏻) button to turn off the camcorder for charging. ➡page 19



Charging indicator

The color of the CHG lamp indicates the power or charging state.







- If the battery pack has been fully charged, the charge indicator is green.
- If you are charging the battery, the color of the charge indicator is orange.
- If an error occurs while the battery pack in charging, the charging indicator blinks green.
- The battery pack is charged over 95% after about 1 hour and 50 minutes, and the indicator color changes to green. It takes about 2 hours for the battery pack to charge 100%.



<Charging indicator>

Battery level display

The battery level display shows the amount of battery power remaining in the battery pack.

Battery level indicator	State	Message
	Fully charged	-
	30~50% used	-
	50~75% used	-
	75~90% used	-
	90~97% used	-
	Exhausted (flickers): The device will soon turn off. Change the battery pack as soon as possible.	-
-	The device will be forced to turn off after 3 seconds.	"Low Battery"



<Battery level display>



Above figures are based on a fully charged battery pack at a normal temperature.
Low ambient temperature may affect the use time.

preparation

Charging, recording and playback times with a fully charged battery pack
(with no zoom operation, LCD open, etc.)

Battery type	IA-BP85NF or IA-BP85ST	
Charging time	approx. 110 min	
Recording format	Continuous recording time	Playback time
HD	approx. 90 min	approx. 120 min
SD	approx. 110 min	approx. 130 min

- Measured times shown above are based on model HMX-H105BN.
(Times for HMX-H100N/HMX-H104BN/HMX-H106SN are almost the same).
- The time is only for reference. Tables showed above are measured under Samsung's test environment, and may differ from your actual use.
- The recording time shortens dramatically in a cold environment. The continuous recording times in the operating instructions are measured using a fully charged battery pack at 77 °F (25 °C). As the environmental temperature and conditions vary, the remaining battery time may differ from the approximate continuous recording times given in the instructions.

Continuous recording (without zoom)

The times shown in the table reflect the available recording time when the HD camcorder is in the record mode without using any other functions. In actual recording, the battery pack may discharge 2-3 times faster than this reference, since the Record start/stop and Zoom are being operated, and playback is performed. Assume that the recordable time with a fully charged battery pack is between 1/2 and 1/3 of the time in the table, so have enough battery packs to allow for the time you are planning to record on the HD camcorder.

Note that the battery pack discharges faster in cold environment.



The charging time will vary depending on the remaining battery level.

About battery packs

- The battery pack should be recharged in an environment that is between 32°F (0°C) and 104°F (40°C). However, when it is exposed to cold temperatures (below 32°F (0°C)), its usage time reduces and it may cease to function. If this happens, place the battery pack in your pocket or other warm, protected place for a short time, then reinsert it.
- Do not put the battery pack near any heat source (i.e. fire or a heater).
- Do not disassemble, apply pressure to, or heat the battery pack.
- Do not allow battery pack terminals to be short-circuited. It may cause leakage, generate heat, or cause fire.
- To preserve battery power, keep your HD camcorder turned off when you are not operating it.
- Even when the power is switched off, the battery pack will still discharge if it is left inserted on the HD camcorder. If you do not use the HD camcorder for an extended time period, keep it with the battery completely depleted.
- For power saving purposes, the HD camcorder will automatically turn off after 5 minutes. (Only if you set **"Auto Power Off"** from the menu to **"5 Min."**)
- When fully discharged, a battery pack damages the internal cells. The battery pack may be prone to leakage when fully discharged. Charge the battery pack at least once per 6 months to prevent complete discharge of the battery pack.

Maintaining the battery pack

- The recording time is affected by temperature and environmental conditions.
- We recommend only using the original battery pack that is available from your Samsung retailer. When the battery reaches the end of its life, please contact your local dealer. The batteries have to be dealt with as chemical waste.
- Make sure that the battery pack is fully charged before starting to record.

About the battery life

Battery capacity decreases over time and through repeated use. If decreased usage time between charges becomes significant, it is probably time to replace it with a new one. Each battery's life is affected by storage, operating and environmental conditions.

Using an AC power source

We recommend that you use the AC power adaptor to power the HD camcorder from a household AC outlet when you perform settings on it, play back, or edit images, or use it indoors. ➡ page 15



- Before detaching the power source, make sure that the HD camcorder's power is turned off. Failure to do so can result in camcorder malfunction.
- Use a nearby wall outlet when using the AC power adaptor. Disconnect the AC power adaptor from the wall outlet immediately if any malfunction occurs while using your HD camcorder.
- Do not use the AC power adaptor in a narrow space, such as between a wall and furniture.

preparation

BASIC HD CAMCORDER OPERATION

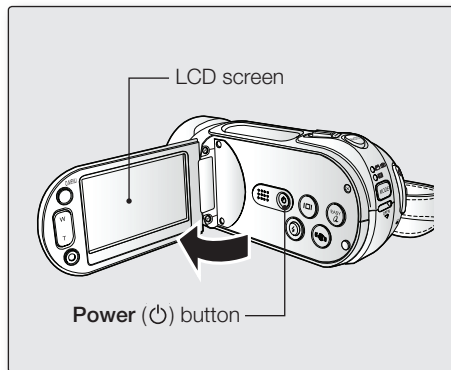
Set the appropriate operation mode according to your preference using the **Power** (⏻) button and **MODE** button.

Turning the HD camcorder on and off

1. Open the LCD screen to turn the camcorder on.
 - The lens opens automatically when the camcorder is powered on.
 - You can also turn the camcorder on by pressing the **Power** (⏻) button.
2. To turn off the camcorder, press the **Power** (⏻) button for about 1 second.
 - Closing the LCD screen will not turn the camcorder off.



- Set the date and time when using your HD camcorder for the first time. ➔ page 25
- When you use your HD camcorder for the first time or you perform the “**Default Set**” function, you will see the “**Time Zone: Home**” setting screen for the startup display. If you do not set the time zone, the time zone setting screen appears every time you turn on your camcorder.







Switching to Sleep mode

- This function works only in Play mode.
- The camcorder switches to Sleep mode automatically when the LCD screen is closed and a video cable is not connected to TV.
- If there is no operation for 20 minutes after the camcorder has entered the sleep mode once, the power is turned off automatically.
(When **"Auto Power off"** is set to **"Off."**)
- If the LCD screen is opened or video cables are connected in the sleep mode, the screen returns to the previous screen.



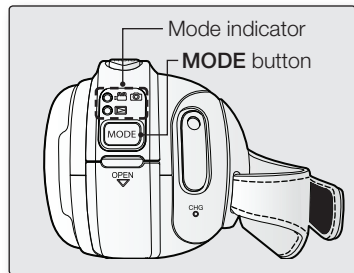
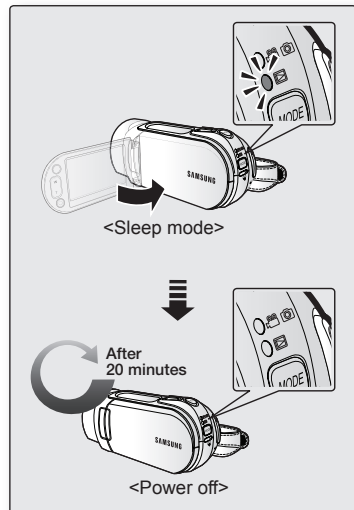
- Sleep mode does not work in the following situations:
 - When a USB or video (HDMI, component/AV) cable is connected.
 - When the LCD screen is opened.
 - While in recording, playing and slide show modes.
 - When **"Auto Power Off"** is set to **"5 Min."**
- When **"Auto Power Off"** is set to **"5 Min.,"** the power of the camcorder is turned off after 5 minutes in Sleep mode.

Setting the operating modes

- You can switch the operating mode in the following order each time you press the **MODE** button.
 - Record mode () ↔ Play mode ()
- Each time the operational mode changes, the respective mode indicator lights up.
 - Record mode (): To record movie or photo images. ➔ pages 32, 34
 - Play mode (): To play movie or photo images, or edit them.
➔ pages 42, 45

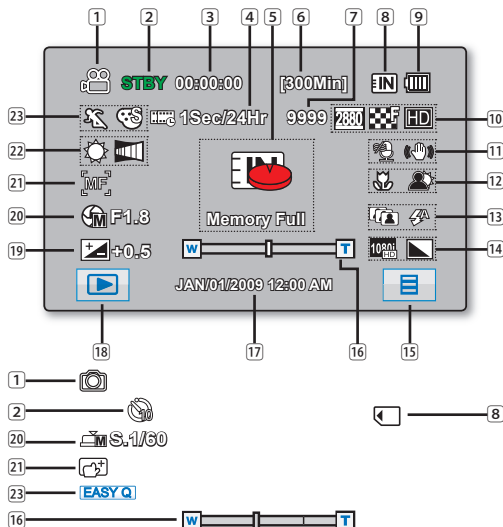


- This camcorder provides one record mode which combines the movie and photo record modes. You can easily record movies or photos in the same mode without having to change it.
- When the HD camcorder is turned on, the self-diagnosis function operates and a message may appear. If a message appears, refer to "Warning indicators and messages" (on pages 119-122) and take corrective action.



preparation

SCREEN INDICATORS




- The OSD indicators are based on memory capacity of 32GB (built-in memory).
- The above screen is an example: It is different from the actual display.
- Functions marked with * will not be retained when the HD camcorder is powered on after turning it off.
- For enhanced performance, the display indications and the order are subject to change without prior notice.
- The number of recordable photo images on the OSD is a maximum of 9999.
- The total number of recordable photos is counted based on available space on the storage media.

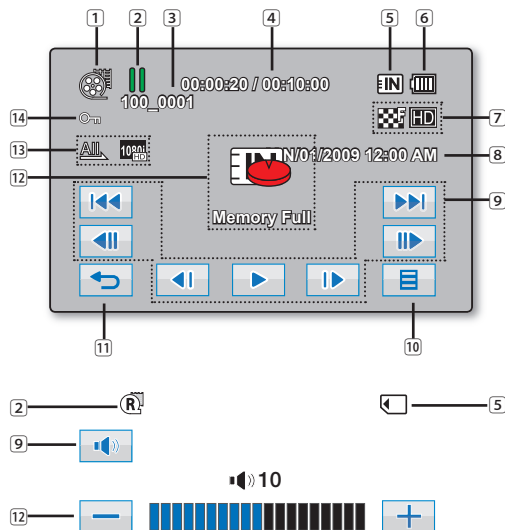
Movie and Photo record mode

- 1 Record mode (📷)
- 2 Operating mode (STBY (Standby) / ● (Recording)) / Self timer*
- 3 Time counter (movie recording time) (🕒)
- 4 Time Lapse REC * (📷)
- 5 Warning indicators and messages
- 6 Remaining recordable time (🕒)
- 7 Photo image counter (📷)
- 8 Storage media (built-in memory or memory card)
- 9 Battery information (remaining battery level)
- 10 Photo image resolution (📷), Movie image quality (📷), Movie image resolution (📷)
- 11 Wind cut (📷), Anti-shake (OIS)
- 12 Tele macro*, Back light
- 13 Cont. shot (📷), Flash mode (📷)
- 14 Analog Video out (when Component/AV cable is connected.), Photo sharpness (📷)
- 15 Menu tab
- 16 Optical zoom / Digital zoom
- 17 Date/Time
- 18 Record / Play mode tab
- 19 Exposure value*
- 20 Manual aperture* / Manual shutter*
- 21 Manual focus* / Touch point focus*
- 22 White balance, Fader* (📷)
- 23 iSCENE mode, Digital effect / EASY Q

Movie play mode

- | | |
|----|---|
| 1 | Movie play mode |
| 2 | Operating status (play/pause) / Highlight view |
| 3 | File name (file number) |
| 4 | Time code (elapsed time/recorded time) |
| 5 | Storage media (built-in memory or memory card) |
| 6 | Battery information (remaining battery level) |
| 7 | Movie image quality, Movie image resolution |
| 8 | Date/Time |
| 9 | Play related function tab (skip/search/playback/pause/slow playback/frame advance/volume) |
| 10 | Menu tab |
| 11 | Return tab |
| 12 | Warning indicators and messages / Volume control |
| 13 | Play option, Analog Video out (when Component/AV cable is connected.) |
| 14 | Erase protection |

 The play related tabs disappear on the screen a few seconds (about 3 seconds) after the image plays back. They reappear when you touch any point on the screen.



preparation

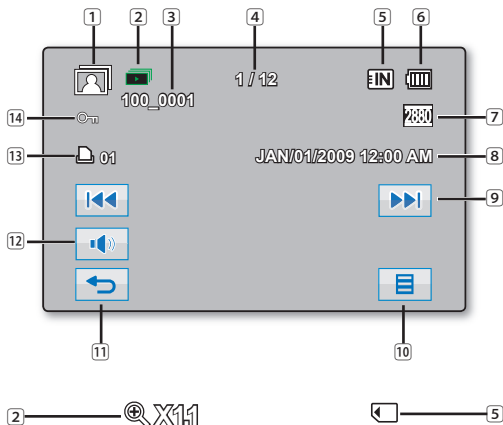


Photo play mode

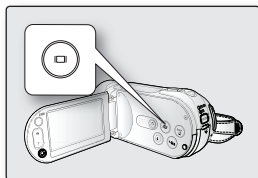
- | | |
|----|--|
| 1 | Photo play mode |
| 2 | Slide show / Playback zoom |
| 3 | File name (file number) |
| 4 | Photo image counter
(current image / total number of recorded images) |
| 5 | Storage media (built-in memory or memory card) |
| 6 | Battery information (remaining battery level) |
| 7 | Photo image resolution |
| 8 | Date/Time |
| 9 | Previous image/Next image tab |
| 10 | Menu tab |
| 11 | Return tab |
| 12 | Volume tab (when activating slide show) |
| 13 | Print mark |
| 14 | Erase protection |

USING THE DISPLAY (I/O) BUTTON

Switching the information display mode

You can switch the information display on/off-screen modes by pressing the **Display** (I/O) button.

- Pressing the **Display** (I/O) button toggles the screen indicators on or off.
- If the HD camcorder has warning information, a warning message will appear even when the screen indicator display is set to off.



USING THE LCD SCREEN

Adjusting the LCD screen

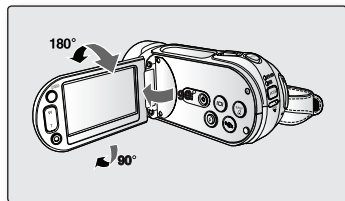
1. Open the LCD screen 90 degrees with your finger.
2. Rotate it to the best angle to record or play.



Do not lift the HD camcorder by holding the LCD screen.



- Over-rotation may cause damage to the inside of the hinge that connects the LCD screen to the HD camcorder.
- See page 85 to adjust the brightness of the LCD screen.



Using the touch panel

The touch panel allows you to enjoy playback and recording with a simple touch of your finger. Place your hand on the rear side of the LCD screen to support it. Then, touch the items displayed on the screen.

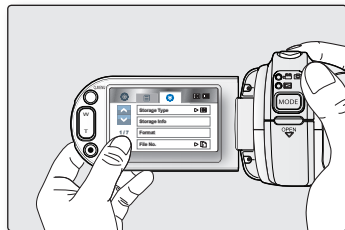


Do not place a protective film on the LCD screen.

If a film is applied for a long while, strong cohesion on the surface of the screen may cause a malfunction of the touch panel.



- Be careful not to accidentally press the buttons near the LCD panel while using the touch panel.
- The tabs and indicators that appear on the LCD panel depend on the current recording/playback status of your HD camcorder.



preparation

INITIAL SETTING: TIME ZONE, DATE AND TIME & OSD LANGUAGE

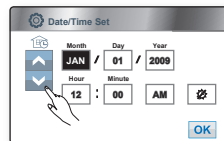
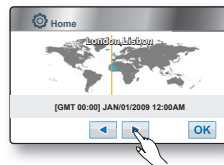
- To read the menus or messages in your desired language, set the OSD language.
- To store the date and time during recording, set the date/time.

Setting the time zone and date/time for the first time

Set the date and time of your local area when turning on this camcorder for the first time.

If you do not set date and time (time zone), the date and time (time zone) screen appears every time you turn on your HD camcorder.

1. Open the LCD screen and then the HD camcorder is powered on automatically.
↳ page 19
 - When you turn on your HD camcorder for the first time, the time zone screen appears based on London, Lisbon (Greenwich Mean Time).
 - You can also set the **“Time Zone: Home”** from the Settings (⚙️) menu. ↳ page 83
2. Touch the left (◀️)/right (▶️) tab to set your local time zone.
 - Refer to the world time difference on page 83.
 - Touch the **OK** (OK) tab when the time zone setting is finished.
3. Touch the up (⬆️)/down (⬇️) tab to set current month, then touch the day field.
4. Set values for day, year, hour, minute, and AM/PM as in setting the month.
5. Set the daylight saving time (⚙️) by touching the daylight saving time (⚙️) tab and the up (⬆️)/down (⬇️) tab.
 - Selecting the (⚙️) forwards the time by 1 hour.
6. Touch the **OK** (OK) tab when the date and time setting is completed.
 - The message **“Date/Time Set”** appears, and the set date/time is applied.





• On charging the built-in rechargeable battery

Your camcorder has a built-in rechargeable battery to retain the date, time, and other settings even when the power is off. The built-in rechargeable battery is always charged while your camcorder is connected to the wall outlet via the AC power adaptor or while the battery pack is attached. The rechargeable battery will be fully discharged in about 6 months if you do not use your camcorder at all. Use your camcorder after charging the built-in rechargeable battery. If the built-in rechargeable battery is not charged, any input data will not be backed up and the date and time (time zone) screen appears every time you turn on your HD camcorder.

- To switch the date and time display on or off, access the menu and change the date/time display mode.
↳ page 85
- You can set the year up to 2037.
- You can easily set the clock to the local time by setting a time difference when using your camcorder abroad. Select **“Time Zone: Visit”** on the menu, then set the time difference. ↳ page 83
- When the date and time are set in the Date/Time Set menu, you can use Exit (⏏) or Return (↩) tab to cancel the update.

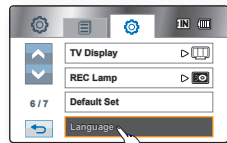
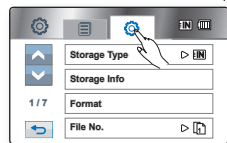
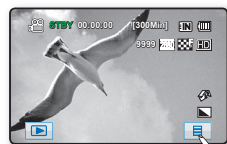
Selecting the OSD language

You can select the desired language to display the menu screen and the messages.

1. Touch the Menu (☰) tab.
2. Touch the Settings (⚙) tab.
3. Touch the up (▲)/down (▼) tab until **“Language”** is displayed.
4. Touch **“Language”**, then touch the desired OSD language.
 “English” → “한국어” → “Français” → “Deutsch” → “Italiano” → “Español” →
 “Português” → “Nederlands” → “Svenska” → “Suomi” → “Norsk” → “Dansk” →
 “Polski” → “Čeština” → “Slovensky” → “Magyar” → “Română” → “Български” →
 “Ελληνικά” → “Srpski” → “Hrvatski” → “Українська” → “Русский” → “中文” →
 “ไทย” → “Türkçe” → “ایرانی” → “العربية” → “IsiZulu”
5. To exit, touch the Exit (⏏) tab or Return (↩) tab repeatedly until the menu disappears.
 - The OSD language is refreshed in the selected language.







- Even if the battery pack or AC power is removed, the language setting will be preserved.
- **“Language”** options may be changed without prior notice.



before recording

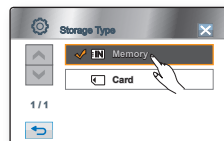
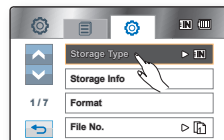
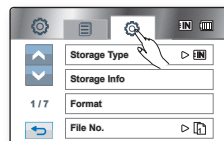
SELECTING THE STORAGE MEDIA (HMX-H104BN/HMX-H105BN/HMX-H106SN only)

- You can record movie and photo images on the built-in memory or a memory card, so you should select the desired storage media before starting recording or playback.
- You can use SD or SDHC cards on your HD camcorder. (Some cards are not compatible depending on the memory card manufacturer and memory card type.)
- Before inserting or ejecting the memory card, turn the HD camcorder off.

1. Touch the Menu () tab.
2. Touch the Settings () tab.
3. Touch the up ()/down () tab until **"Storage Type"** is displayed.
4. Touch **"Storage Type,"** then the desired storage media.
 - **"Memory"**: When using the built-in memory.
 - **"Card"**: When using the memory card (SD or SDHC card).



- Never format the built-in memory or memory card using a PC.
- When you insert a memory card, the storage media setup screen appears. Touch **"Yes"** if you want to use a memory card, or **"No"** if not.
- Do not remove the power (battery pack or AC power adaptor) when accessing storage media for recording, playback, format, delete, etc. The storage media and its data may be damaged.
- Do not eject a memory card while it is being used in the camcorder. The memory card and its data may be damaged.
- You can also access it by using the **Q.MENU** button. Press the **Q.MENU** button. → Touch **"Storage"** → Touch **"Memory"** or **"Card."**
- **"Storage Type"** is grayed out when the memory card is not inserted.
- SSD refers to the built-in memory (Memory).



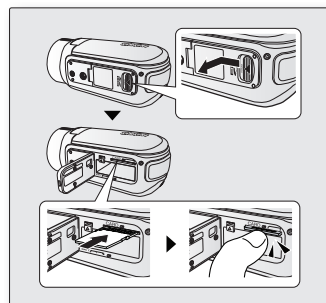
INSERTING/EJECTING A MEMORY CARD

Inserting a memory card

1. Open the memory card cover by sliding the **OPEN** switch to the left as shown in the figure.
2. Insert the memory card into the slot until it softly clicks.
 - Make sure that the terminal portion is facing up and the camcorder is placed as shown in the figure.
3. Close the memory card cover.

Ejecting a memory card

1. Open the memory card cover by sliding the **OPEN** switch to the left as shown in the figure.
2. Slightly push the memory card inwards to pop it out.
3. Pull the memory card out of the slot and close the memory card cover.



The HD camcorder supports SD and SDHC memory cards for data storage.

The data storage speed may differ, according to the manufacturer and production system.

- SLC (single level cell) system: faster write speed enabled.
- MLC (multi level cell) system: only lower write speed is supported.

For best results, we recommend using a memory card that supports faster write speed.

Using a lower write speed memory card for recording video may cause difficulties when storing.

You may even lose your movie data during the recording.

In an attempt to preserve any bit of the recorded movie, the HD camcorder forcibly stores the movie on the memory card and displays a warning: **"Low speed card. Please record a lower Resolution."**

If you are unavoidably using a low speed memory card, resolution and quality of the recording may be lower than the set value.

↪ pages 60-61

Actual formatted capacity may be less as the internal firmware uses a portion of the memory.

before recording

RECORDABLE TIME AND NUMBER OF IMAGES

Recordable time for movie images

Movie resolution/ Movie quality		Storage media (Capacity)					
		2GB	4GB	8GB	16GB	32GB	64GB (HMX-H106SN only)
[HD]1080/60i	Super Fine	Approx. 15min	Approx. 30min	Approx. 61min	Approx. 125min	Approx. 253min	Approx. 498min
	Fine	Approx. 18min	Approx. 36min	Approx. 74min	Approx. 152min	Approx. 307min	Approx. 604min
	Normal	Approx. 23min	Approx. 46min	Approx. 94min	Approx. 193min	Approx. 390min	Approx. 766min
[HD]720/60p	Super Fine	Approx. 21min	Approx. 42min	Approx. 86min	Approx. 177min	Approx. 357min	Approx. 704min
	Fine	Approx. 28min	Approx. 57min	Approx. 115min	Approx. 235min	Approx. 475min	Approx. 934min
	Normal	Approx. 42min	Approx. 84min	Approx. 171min	Approx. 351min	Approx. 708min	Approx. 1392min
[SD]480/60p	Super Fine	Approx. 63min	Approx. 126min	Approx. 254min	Approx. 521min	Approx. 1051min	Approx. 2068min
	Fine	Approx. 83min	Approx. 166min	Approx. 336min	Approx. 688min	Approx. 1387min	Approx. 2728min
	Normal	Approx. 123min	Approx. 244min	Approx. 494min	Approx. 1011min	Approx. 2039min	Approx. 4012min

Recordable number of photo images

Photo resolution	Storage media (Capacity)					
	2GB	4GB	8GB	16GB	32GB	64GB
2880x1620	Approx. 1251	Approx. 2482	Approx. 5014	Approx. 9999	Approx. 9999	Approx. 9999
1920x1080	Approx. 2346	Approx. 4654	Approx. 9402	Approx. 9999	Approx. 9999	Approx. 9999



- The above tables are measured under Samsung's standard recording test conditions and may differ depending on actual use.
- The higher the resolution and quality settings, the more memory is used.
- The compression rate increases when choosing lower quality settings.
The higher the compression rate is, the longer the recording time will be. However, the quality will be lower.
- The bit rate is automatically changed by recording image, and the recording time may vary accordingly.
- Memory cards of bigger than 32GB in capacity may not work properly.
- The maximum size of a movie file that can be recorded at one time is 1.8GB.

SELECTING A SUITABLE MEMORY CARD

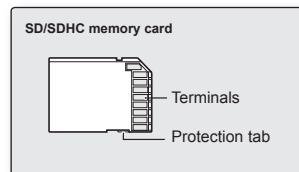
- You can use a SD and SDHC cards. (SD cards up to 2GB are supported.)
- MultiMediaCards(MMC) and MMCplus cards are not supported.
- On this HD camcorder, you can use memory cards of the following capacity: 1GB ~ 32GB.
- **Compatible recording media**

The following recording media have been recommended to work with this HD camcorder. Others are not guaranteed to work, so buy such products with caution.

- By Panasonic, SanDisk, and TOSHIBA.
- If other media are used, they may fail to record data correctly, or they may lose data that has already been recorded.
- For movie recording, use a memory card that supports faster write speeds (above SDHC Class 6 card).
- An SD/SDHC card has a mechanical write protection switch. Setting the switch prevents accidental erasure of files recorded on the card. To enable writing, move the switch up in the direction towards the terminals. To set write protection, move the switch down.

SDHC (Secure Digital High Capacity) memory card

- SDHC memory card complies with the new SD specification Ver.2.00. This latest specification was established by the SD Card Association to realize data capacity over 2GB.
- SDHC memory cards can not be used with current SD only enabled host devices.
- The write speed of SDHC card is decided by Class. The number after Class represents the write speed and its unit is MB/sec. The higher the class number of the card is, the faster the write/read speed of the card is.



<Usable memory cards>

before recording

Common cautions for memory cards

- Damaged data may not be recovered. It is recommended you back-up important recordings separately on your PC's hard disk.
- After you modify the name of a file or folder stored in the memory card using your PC, your camcorder may not recognize the modified file.

Handling a memory card

- It is recommended that you power off before inserting or removing the memory card to avoid data loss.
- It is not guaranteed that you can use a memory card formatted by other devices. Be sure to format your memory card using this camcorder.
- Memory cards need to be formatted on this camcorder before use.
- If you cannot use a memory card that has been previously used with another device, format it on your HD camcorder. Note that formatting erases all information on the memory card.
- A memory card has a certain life span. If you cannot record new data, you have to purchase a new memory card.
- Do not bend, drop, or cause strong impact to the card.
- Do not use or store in a place that has high temperature and humidity or a dusty environment.
- Do not place foreign substances on the memory card terminals. Use a soft dry cloth to clean the terminals if required.
- Do not put any additional labels on the memory card.
- Be careful to keep the memory card out of the reach of children, who might swallow it.

Notes on use

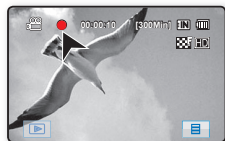
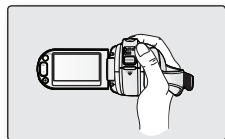
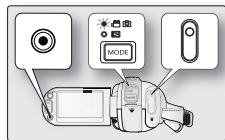
- Samsung is not responsible for data loss due to misuse.
- We recommend using a memory card case to avoid losing data from moving and static electricity.
- After a period of use, the memory card may get warm. This is normal and is not a malfunction.

recording

- Basic procedures to record a movie or photo image are described below and on the following pages.
- This camcorder provides one combined movie and photo record mode.
You can easily record movies or photos in the same mode without having to change it.

RECORDING MOVIE IMAGES

- You can record movie images in Record mode only. ➡page 20
 - This HD camcorder provides two **Recording start/stop** buttons.
One is on the rear side of the camcorder and the other is on the LCD panel.
Select the one that works best for you.
1. Turn the HD camcorder on.
 - Connect a power source to the HD camcorder.
(A battery pack or an AC power adaptor) ➡pages 14,18
 - Open the LCD screen and the HD camcorder is powered on automatically.
➡page 19
 - You can also turn the HD camcorder on by pressing the Power (⏻) button.
 - The lens cover opens automatically when HD camcorder is powered on.
 - Set the appropriate storage media.
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➡page 27
(If you want to record on a memory card, insert the memory card.)
 2. Check the subject on the LCD screen.
 3. Press the **Recording start/stop** button.
 - The recording (●) indicator will display, and recording will start.
 - To stop recording, press the **Recording start/stop** button again.
 4. When recording is finished, turn the HD camcorder off by using the **Power** (⏻) button for about 1 second.





- Movie images are compressed in the H.264 (MPEG4 part10/AVC) format.
- Eject the battery pack when you have finished recording to prevent unnecessary battery power consumption.
- For on-screen information display, see page 21.
- For approximate recording time, see page 29.
- You can record movie images using the remote control.
- Sound is recorded from the internal stereo microphone at the left and right of the lens. Make sure that this microphone is not blocked.
- Before recording an important movie, make sure to test the recording function by checking if there is any problem with the audio and video recording.
- For various functions available during recording, see “RECORDING MENU ITEMS” on pages 59-79.
- Do not operate the **Power** (⏻) button or remove the memory card while accessing the storage media. Doing so may damage the storage media or the data in the storage media.
- If the power cable/battery is disconnected or recording is disabled during recording, the system is switched to the data recovery mode. While data is being recovered, no other function is enabled. After data recovery, the system will be switched to the STBY mode. When the recording time is short, the data recovery might fail.
- You can select the resolution and quality of movie image to be recorded. ➡pages 60~61
- You can switch the play mode to the record mode by pressing the **Recording start/stop** button.

recording

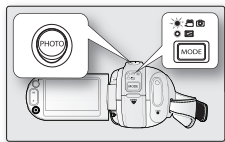
TAKING PHOTO IMAGES

You can take photo images in Record mode only. ➡page 20


1. Open the LCD screen and then the HD camcorder is powered on automatically. ➡page 19
 - You can also turn the HD camcorder on by pressing the **Power** (⏻) button.
 - The lens opens automatically when the HD camcorder is turned on.
 - Set the appropriate storage media.
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➡page 27
(If you want to record on a memory card, insert the memory card.)
2. Check the subject on the LCD screen.
3. Press the **PHOTO** button halfway down (half press).
 - The HD camcorder automatically focuses on the subject at the center of screen (when auto focus is selected).
 - When the image is in focus, the (●) indicator is displayed in green.
4. Press the **PHOTO** button down fully (full press).
 - A shutter sound is heard, and the photo image is recorded.
 - While saving the photo image on the storage media, you cannot proceed with the next recording.

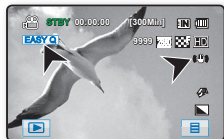
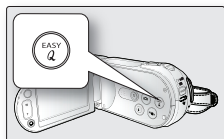


- To use the built-in flash. ➡page 39
- The number of photos that can be stored depends on the photo resolution. ➡page 29.
- Audio will not be recorded with the photo image.
- If focusing is difficult, use the manual focus function. ➡page 69
- Do not operate the **Power** (⏻) button or remove the memory card while accessing the storage media. Doing so may damage the storage media or the data on storage media.
- You can switch the play mode (thumbnail index view only) to the record mode by pressing the **PHOTO** button.
- Photo files recorded by your HD camcorder conform to the "DCF (Design rule for Camera File system)" universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association). DCF is an integrated image-file format for digital cameras: Image files can be used on all digital devices conforming to DCF.




RECORDING WITH EASE FOR BEGINNERS (EASY Q MODE)

- The EASY Q function is only available with the Record mode. ➔ page 20
 - With the EASY Q function, most of the HD camcorder settings are automatically adjusted, which frees you from making detailed adjustments.
1. Press the **EASY Q** button.
 - When you press the **EASY Q** button, most functions turn off and the following functions are set to “Auto.” (iSCENE, White Balance, Aperture, Anti-Shake, Focus, Shutter, Flash, etc.)
 - The EASY Q (**EASY Q**) and Anti-shake () indicators appear on the screen at the same time.
 2. To record movie images, press the **Recording start/stop** button.
To take photo images, press the **PHOTO** button.



To cancel EASY Q mode



Press the **EASY Q** button again.

- The EASY Q (**EASY Q**) and Anti-shake () indicators disappear from the screen.
- Most settings will return to the settings that were set prior to activating the **EASY Q** mode.
- You cannot cancel the EASY Q mode during recording.



Unavailable buttons during EASY Q operation

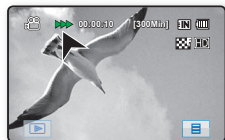
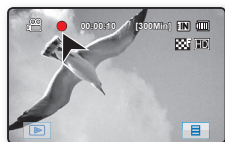
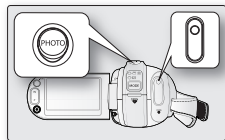
The following buttons and control are unavailable because the items are automatically set. The “Release the EASY.Q” messages may appear if unavailable operations are attempted.

- Menu () tab / Q.MENU button / Flash () button, etc.
- See page 130 for the list of unavailable functions.
- Cancel the EASY Q function if you want to add an effect or settings to the images.

recording

CAPTURING STILL IMAGES DURING MOVIE IMAGE RECORDING (DUAL RECORDING)

- This function works only in Record mode. ➡page 20
 - You can record still images on the storage media during recording movie image.
1. Press the **Recording start/stop** button.
 - The recording (●) indicator will display, and recording will start.
 2. Press the **PHOTO** button at the scene you want during movie image recording.
 - When the (▶▶▶) indicator disappears, the photo image has been recorded.
 - Video keeps recording, even while photos are taken.
 - To stop recording, press the **Recording start/stop** button again.
-  • Photo image is captured in 1920x1080 resolution regardless to the resolution of the movie recording.
- You cannot use the flash during dual recording.
 - You cannot capture still images during Time Lapse REC.



ZOOMING

This HD camcorder allows you to record using optical 10x power zoom and digital zoom with the **Zoom** lever or the **Zoom** button on the LCD panel.

To zoom in

Slide the **Zoom** lever towards **T** (telephoto).
(Or press the **T** (zoom) button on the LCD panel.)

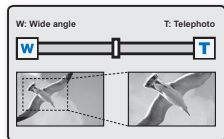
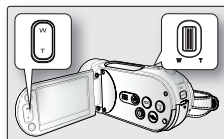
To zoom out

Slide the **Zoom** lever towards **W** (wide angle).
(Or press the **W** (zoom) button on the LCD panel.)

- The further you slide the **Zoom** lever, the quicker the zoom action.
- Zoom magnification over 10x is done through digital image processing, and is therefore called digital zoom. You can achieve up to 100x magnification by using digital zooming. Set "**Digital Zoom**" to "**On.**" ↪ page 74



- The focus changes when zooming after focusing manually. Focus automatically or seize the desired scene by zooming before focusing manually. ↪ page 69
- During digital zoom, the image quality may suffer.
- When you zoom into a subject close to the lens, the HD camcorder may automatically zoom out depending on the distance to the subject. In this case, set "**Tele Macro**" to "**On.**" ↪ page 73
- If you operate the **Zoom** (W/T) lever during recording, the sound of the lever may be recorded as well.
- When using the zoom function, its speed can be decreased by slowly moving the **Zoom** (W/T) lever. A fast moving increases the zoom speed. However, the **Zoom** (W/T) button on the display cannot adjust the zoom speed.



recording

SETTING THE ANTI-SHAKE (OIS: OPTICAL IMAGE STABILIZER)

- This function works only in Record mode. ➡ page 20
- Anti-shake (OIS) is a function that, within reasonable limits, compensates for shaking movements produced when filming hand-held. Anti-shake (OIS) provides a more stable image when:
 - Recording with deep zooming
 - Recording a close up picture of a small object
 - Recording while walking, or moving
 - Recording through the window, from inside a vehicle



Press the **Anti-shake (OIS)** (👉) button to toggle the Anti-shake (OIS) mode between On and Off.

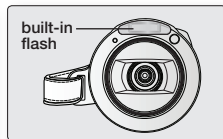
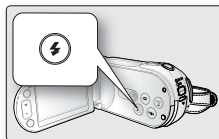
- The EASY Q mode automatically sets the Anti-Shake (OIS) to On.
- When Anti-Shake (OIS): On is set, there will be a slight difference between the actual movement and the movement on screen.
- Excessive camcorder shake may not be entirely corrected even if Anti-Shake (OIS): On is set. Firmly hold the HD camcorder with both hands.
- It is recommended that you specify Anti-Shake (OIS): Off when using the HD camcorder on a desk or tripod (not supplied).
- When you record images with high magnification and the Anti-shake (OIS) is set to On in dark locations, after-images may stand out. In this case, we recommend using a tripod (not supplied) and turning the Anti-shake (OIS) to Off.

USING THE BUILT-IN FLASH

- This function works only in Record mode (📷). ➔page 20
- You can take natural looking flash photo images with appropriate illumination using the built-in flash, whether they are night scenes, indoors or in other dark places.

Press the **Flash** (⚡) button.

- Each time you press the **Flash** (⚡) button, flash mode is changed to; Auto (📷), Red-eye (👁), Fill in (⚡), Slow sync (⚡S), or Off (🚫).



Flash mode

Settings	Contents	On-screen display
Off	Records without flash.	🚫
Auto	Automatically flashes when there is insufficient ambient light.	📷
Red-eye reduction	Pre-flashes to reduce red-eye before the flash automatically flashes when there is insufficient ambient light.	👁
Fill in	Always uses the flash regardless of the surrounding brightness.	⚡
Slow sync	When the shutter speed is set to slow and the flash fires at the adjusted shutter speed. Use to capture both the subject and background at night or in dim light. Use of a tripod(not supplied) is recommended to prevent a blurred photo image. Slow sync flash mode allows the user to take brighter background as well as brighter subject at night.	⚡S



- Do not fire the flash with the flash bulb covered with your hand.
- Do not fire the flash close to people's eyes as the subjects could suffer a temporary loss of eyesight. Never use the flash closer than 3 feet from children.

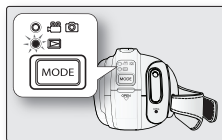


- The recommended distance to the subject when using the built-in flash is approximately 4 to 7 feet.
- The battery power will be consumed faster with repeated use of the flash.
- The flash function is not available with the following functions:
 - **"Cont. Shot"**
 - During video recording
 - In case of capturing still images during video recording

recording

CAPTURING STILL IMAGES DURING MOVIE IMAGES PLAYBACK

- This function works only in Play mode. ➔page 20
 - If you press the **PHOTO** button during playback, the camcorder stops playing and saves one image of the current movie scene that is paused.
 - Set the appropriate storage media.
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➔page 27
(If you want to record on a memory card, insert the memory card.)
1. Touch the HD Movie (📺HD) tab or SD Movie (📺SD) tab.
 - The thumbnail index view appears accordingly.
 - To change the current thumbnail page, touch the up (⬆️) or down (⬇️) tab.
 2. Touch the movie image you want to play back.
 3. Press the **PHOTO** button halfway down.
 - The playback screen is paused.
 4. Press the **PHOTO** button fully down.
 - When the (▶▶▶) indicator disappears, the still image is recorded on the storage media.
- 📝
- Still image is captured in 1920x1080 resolution regardless to the resolution of the recorded movies.
 - The Time Lapse movie images cannot be captured as a still image.
 - The movie image is captured as a photo image at the 16:9 screen ratios.
 - Photo images are compressed in JPEG (Joint Photographic Experts Group) format.

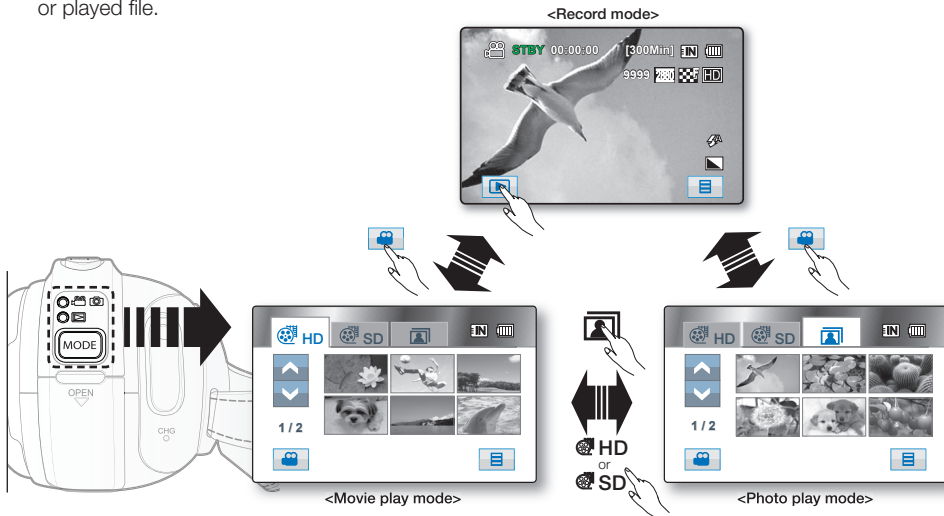


playback

You can view recorded movie and photo images in thumbnail index view and play them in various ways.

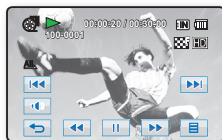
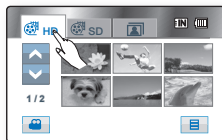
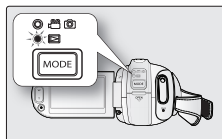
CHANGING THE PLAYBACK MODE

- You can set the record mode and the play mode in turn with the **MODE** button.
- You can also switch the record mode and the play mode by touching the mode tab on the lower left of the LCD screen.
- The recorded movie and photo images are displayed in thumbnail index view.
- According to the resolution, movie images are stored in HD and SD thumbnail index view, respectively. If switch to the play mode, the thumbnail index view appears. And the thumbnail highlight is on the latest recorded or played file.



PLAYING MOVIE IMAGES

- This function works only in Play mode. ➔page 20
 - You can find a desired movie image quickly using thumbnail index views.
 - You can also use the playback related buttons on the remote control. ➔page 43
1. Open the LCD screen to turn on the power and press the **MODE** button to set Play (📺).
 - You can also turn the HD camcorder on by pressing the **Power** (🔌) button.
 - Set the appropriate storage media.
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➔page 27
(If you want to play from a memory card, insert the memory card.)
 2. Touch the HD Movie (📺HD) tab or SD Movie (📺SD) tab.
 - The thumbnail index view appears accordingly.
 - To change the current thumbnail page, touch the up (⬆) or down (⬇) tab.
 3. Touch a desired movie image.
 - The selected movie image is played according to Play Option setting. ➔page 79
 - To stop playback and return to the thumbnail index view, touch the Return (↩) tab.
- 📝
- The play related tabs disappear on the screen a few seconds after the image plays back. They reappear when you touch any point of the screen.
 - Depending on the amount of data to be played back, it may take some time for the playback images to appear.
 - Movies edited on a PC may not be displayed on this HD camcorder.
 - Movies recorded on another camcorder cannot be played on this HD camcorder.

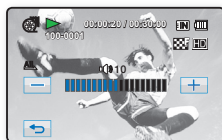


Adjusting the volume

- Touch the Volume (🔊) tab on the LCD screen.
 - You can control the volume by using the decrease (⬅) or increase (➡) tab on the LCD screen.
 - The level can be adjusted anywhere between 0 and 19.



- You can hear the recorded sound from the built-in speaker.
- If you close the LCD screen while playing, you will not hear the sound from the speaker.



playback

Various playback operations

Playback / Pause / Stop

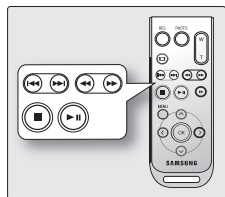
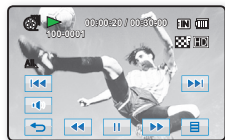
- Play and Pause functions alternate when you touch the Playback (▶) / Pause (⏸) tab during playback. Touch the Return (↩) tab to stop playback.
- You can do the same operation by using the remote control. (⏮/⏭)

Search playback

- During playback, each touch of the Reverse search (◀◀) / Forward search (▶▶) tab increases the play speed.
 - RPS (Reverse Playback Search) rate: x2 → x4 → x8 → x2
 - FPS (Forward Playback Search) rate: x2 → x4 → x8 → x2
- You can perform the same operation by using the remote control. (⏮/⏭)
- To resume normal playback, touch the Playback (▶) tab or press Playback/Pause button (⏮) on the remote control.

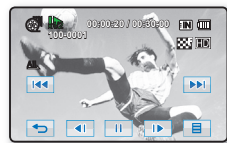
Skip playback

- Touch the Reverse skip (◀◀) / Forward skip (▶▶) tab during playback.
When playing the selected movie, if you touch the Forward skip (▶▶) tab, it moves to the next movie.
If you touch the Reverse skip (◀◀), it moves to the beginning of the movie. If you touch the Reverse skip (◀◀) within 3 seconds from the start of a movie, it moves to the beginning of the previous movie.
- You can do the same operation by using the remote control. (⏮/⏭)



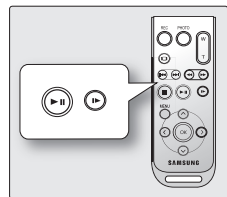
Slow playback

- Touching the Reverse slow (◀||) tab / Forward slow (||▶) tab while paused will play the movie reverse/forward at the x1/2, x1/4 and x1/8 speed.
- You can play the movie forward at the x1/2, x1/4 and x1/8 speed by using the Slow (⏮) button on the remote control.
- To resume normal playback, touch the Playback (▶) tab or press the Playback/Pause (⏮) button on the remote control.



Frame by frame playback

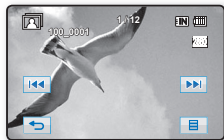
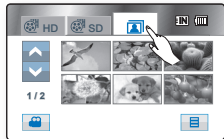
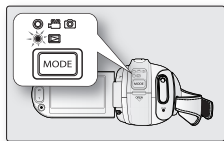
- Touch the Reverse frame advance (◀||) / Forward frame advance (||▶) tab during pause to begin the reverse/forward frame advance.
- To resume normal playback, touch the Playback (▶) tab or press the Playback/Pause (⏮) button on the remote control.



playback





VIEWING PHOTO IMAGES

- This function works only in Play mode. ➡page 20
 - You can play back and view photo images recorded on the storage media.
1. Open the LCD screen to turn on the power and press the **MODE** button to set Play (📺).
 - You can also turn the HD camcorder on by pressing the **Power** (🔌) button.
 - Set the appropriate storage media.
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➡page 27
(If you want to playback images on a memory card, insert the memory card.)
 2. Touch the Photo (👤) tab.
 - The thumbnail index view appears.
 - To change the current thumbnail page, touch the up (⬆️) or down (⬇️) tab.
 3. Touch a desired photo image.
 4. Touch previous image (⏮️)/next image (⏭️) tab to search the desired photo image.
 - To view the previous image, touch the previous image (⏮️) tab.
 - To view the next image, touch the next image (⏭️) tab.
 - Place and hold your finger on the previous image (⏮️)/next image (⏭️) tab to search for an image quickly. Actually the image number is changed during search with images not changed.
 5. To return to the thumbnail index view, touch the Return (↶) tab.
- 📝 • The play related tabs disappear on the screen a few seconds after play starts. They reappear when you touch any point on the screen.
- Loading time may vary depending on the image size.
 - Photo (JPEG) files created in the other devices cannot be played back in this HD camcorder.



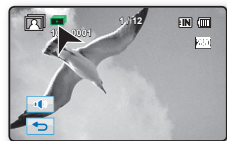
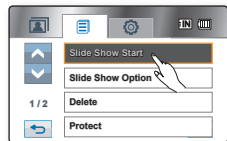
To view a slide show

You can enjoy a slide show with the background music.

1. Touch the Menu () tab in the thumbnail index view or single image display mode.
 - The menu will appear.
2. Touch “Slide Show Start.”
 - The () indicator is displayed. A slide show starts from the current image.
 - All photo images are play back continuously in the set slide show option (Interval, Effect, or Music). ➡page 80
 - You can adjust the background music's volume level using the Volume () tab while in a slide show with music.
 - To stop the slide show, touch the Return () tab.



- A slide show is available also in the quick menu. ➡page 58
- This camcorder has 7 tunes of background music by default, stored in the boot-up flash memory. Starting a slide show begins to play back 7 background music in shuffle mode.
- The background music cannot be created or edited.



playback

Zooming during photo playback

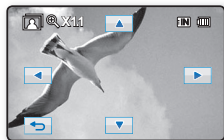
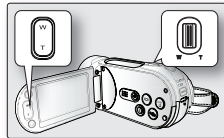
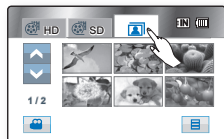
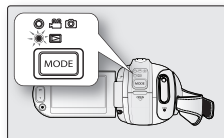
You can magnify the playback photo image from the original size.

Magnification can be adjusted with the **Zoom** lever or the **Zoom** button on LCD panel.

1. Touch the image you want to magnify.
2. Adjust the magnification with **W** (Wide angle)/**T** (Telephoto).
 - The screen is framed and the image is magnified starting from the center of image.
 - You can zoom in from X1.1 to X8.0 by sliding the **Zoom** lever.
 - While the playback zoom is in use, other images cannot be selected.
3. Touch the up (▲)/down (▼)/left (◀)/right (▶) tab to get the part you want in the center of the screen.
4. To cancel, touch the Return (↶) tab.



- You cannot apply the playback zoom function to the images that are recorded on other devices.
- The playback zoom function is available only in the photo play mode.



connection

You can view the recorded movie and photo images on a large screen by connecting the HD camcorder to an HDTV or normal TV.

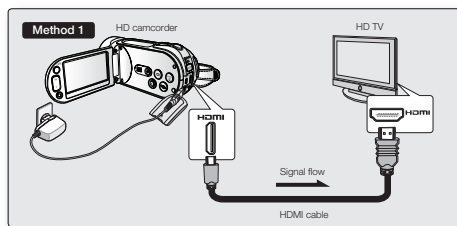
CONNECTING TO A TV

Before connecting to a TV

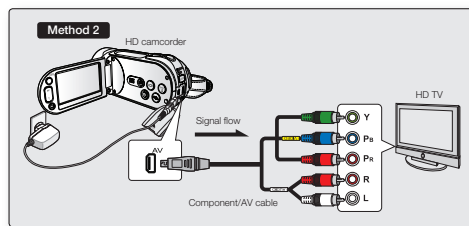
- Depending on your TV and cables that are used, the connection method and resolution may differ.
- For more information about the connection, refer to your TV's user manual.
- Use the supplied AC power adaptor as the power source. ➡ page 18

Connecting to a high definition TV

To play back the HD-quality (1920x1080 or 1280x720) movie images, you need a high definition TV (HDTV).



Connect your HD camcorder to a TV with the HDMI cable. (The HDMI cable is an optional accessory.)



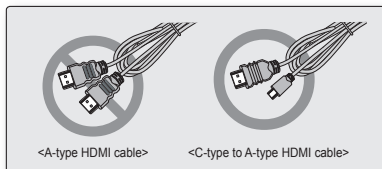
1. Connect your HD camcorder to a TV with the Component/AV (**Y/Pb/Pr, Audio L/R**) cable.
2. Set the output signal for TV using the “**Analog TV Out**” function.
➡ page 89

➡ Continued...



About HDMI (High Definition Multimedia Interface)

- HDMI carries both video and audio signals over one cable and supplies high quality images and sound.
- The HDMI jack on your HD camcorder is used only for output.
- Only a C-type to A-type HDMI cable can be used with this camcorder.

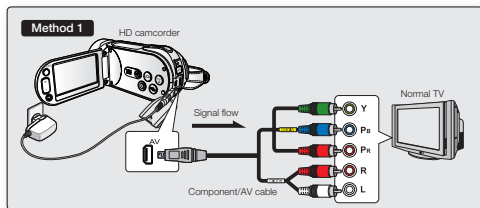


- Use only the HDMI 1.3 cable when connecting to the HDMI jack of this camcorder.
- You can use the Anynet+ function by connecting the HD camcorder to a Samsung Anynet+ supported TV with the HDMI cable. Refer to the corresponding TV's user manual for more details.
- When the HD camcorder is connected to the Anynet+ supported TV with an HDMI cable, the TV automatically turns on. (It is one of the Anynet+ functions.) If you do not want to use Anynet+ function, set **"Anynet+ (HDMI-CEC)"** to **"Off."** ➡ page 92
- When an HDMI cable is connected, it will override all other connections.
- When using HDMI, the TV type is recognized and the video output resolution of the camcorder is automatically set. Manual setting is not necessary.

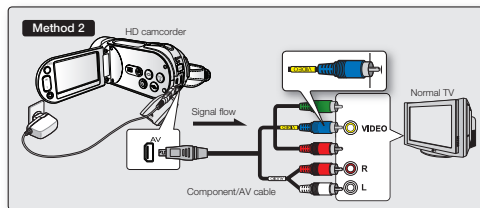
connection

Connecting to a normal (standard definition) TV (16:9/4:3)

- This connection is used when downconverting recorded HD-quality images to SD-quality images for playback.
- When playing back HD-quality (1920x1080 or 1280x720) movie images on a SDTV, the images are downconverted to 720x480 standard definition images.



1. Connect your HD camcorder to a TV with the Component/AV (**Y/Pb/Pr, Audio L/R**) cable.
2. Set the camcorder's output signal to the TV using the **"Analog TV Out"** function. ➔page 89



1. Connect your HD camcorder to a TV with the Component/AV (**Video, Audio L/R**) cable. Use the Blue plug with the yellow label to connect to the Video input on your TV.
2. Set the camcorder's output signal to the TV using the **"Analog TV Out"** function. ➔page 89







- If only a mono audio input is available on the TV set, use the white plug (audio L) on the audio cable.
- When the camcorder is connected to a TV with more than one cable, the output signal is followed in the order of priority: HDMI output → Component output → Video output
- Do not use excessive force when connecting the cables.
- When connecting the Component/AV, make sure to match the color of the cable plugs to the TV jacks. The exception to this is when following Method 2 above, the Blue plug may not match the Video input on your TV (usually Yellow).
- It is recommended to use the AC power adaptor as the power source.
- When the HD camcorder is connected to a TV, you cannot control the volume of the TV from the camcorder.

Viewing on a TV screen

1. Open the LCD screen to turn on the power and press the **MODE** button to set Play (⏮). ➡page 20
 - You can also turn the HD camcorder on by pressing the **Power** (⏻) button.
2. Turn on the TV and set the input source on the TV to the input connection the HD camcorder is connected to.
 - Refer to the TV's instruction manual to see how to switch the TV input.
3. Perform playback. ➡pages 42, 45
 - The image on the HD camcorder appears on the TV screen.
 - You can also monitor the image on the LCD screen of the HD camcorder.
 - You can also perform play, recording or editing in play mode while viewing on a TV screen.

Image display depending on TV screen ratio

● Icon ● Subject

Recording type	Recording	LCD	TV	
		16:9	16:9	4:3
Images recorded in 16:9 ratio <ul style="list-style-type: none"> • Movie images • Photo capture images 				



- Adjust the sound volume on the TV.
- The remote control is useful when operating the HD camcorder while viewing an image on a TV screen.
- Information that the HD camcorder is recording will appear on the TV screen: You can switch between the on-screen information display modes. Refer to “Switching the information display mode” and press the **Display** (⏮) button to switch the display status. ➡page 24
- When “**TV Display**” is set to off, OSD (On-Screen-Display) does not appear on the TV screen. ➡page 90
- The default setting for Analog TV Output is Component 1080i.
If you have used any other Analog TV output mode, your TV may not display correctly. In this case, set the Analog TV Output again. Even if the Analog TV Output is correctly set and the corresponding cable is connected, when your TV does not display correctly, check the Input setting of your TV. (Refer to your TV manual.)

connection

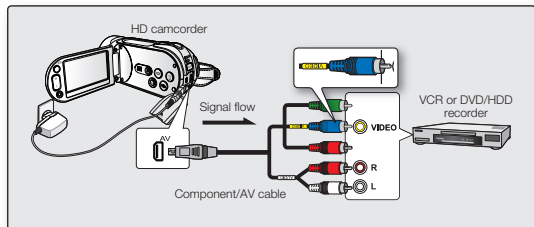
DUBBING IMAGES FROM THE CAMCORDER TO A VCR OR DVD/HDD RECORDER

- You can dub images played back on you camcorder to other recording devices, such as VCRs or DVD/HDD recorders.
- Refer to “editing movie images” to create a playlist by selecting desired scenes from those recorded on this HD camcorder. ↪ page 97
- **Use the provided Component/AV (Video, Audio L/R) cable to connect the HD camcorder to the other AV device.**

1. Press the **MODE** button to set Play (⏮).
2. Set “**Analog TV Out**” to “**Composite.**” ↪ page 89
3. Choose the desired image to be dubbed, then press the record button on the connected device.
 - The HD camcorder will start playback and the recording device will dub it.



Be sure to use the AC power adaptor to power the HD camcorder to prevent battery power from shutting off during dubbing on the other video device.

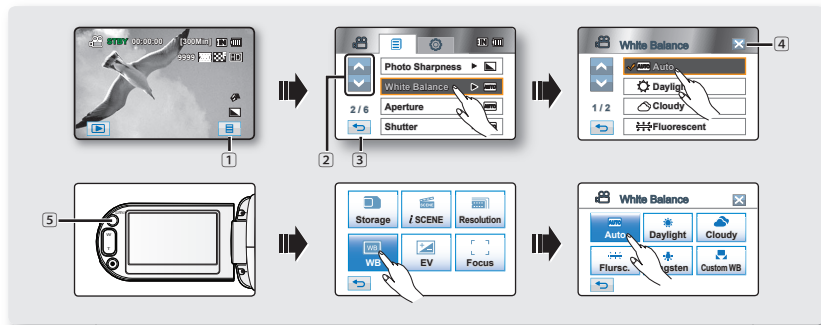


using the menu items

You can operate the HD camcorder more efficiently by setting menus related to recording, playback and setting.

HANDLING MENUS AND QUICK MENU

- You can change the menu settings to customize your HD camcorder. Access the desired menu screen by following the steps below and change the various settings.
- Using the touch panel, you can easily make your selection and navigate the menu.



- 1 Menu () tab: Use it to enter the menu.
- 2 Up () / down () tab: Use it to move to the previous or next page.
- 3 Return () tab: Use it to move to the previous menu or exit from the menu.
- 4 Exit () tab: Use it to exit from the menu.

- 5 **Q.MENU** button: Use it to enter the quick menu.

Quick menu provides easier access to frequently used menus without using the Menu () tab.










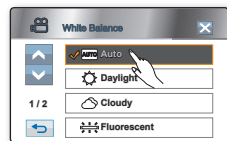
- Menu and quick menu cannot be used in EASY Q mode.
- Accessible items in menu and quick menu vary depending on the operation mode.
For the accessible items, see pages 55-58.

✪ Follow the instructions below to use each of the menu items listed after this page.



For example: setting the White Balance in Record mode.

When using Menu () tab:


1. Touch the Menu () tab.
2. Touch “White Balance.”
 - If the item is not on the screen, touch the up () or down () tab to scroll up or down to the next group of options.
3. Touch the desired option.
 - If the item is not on the screen, touch the up () or down () tab to scroll up or down to the next group of options.
4. To exit, touch the Exit () tab or Return () tab until the menu disappears.

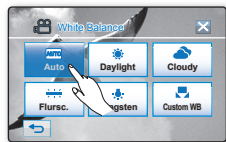


When using the Q.MENU button:

1. Press the **Q.MENU** button to enter the quick menu.
2. Touch “WB.”
3. Touch the desired option.
4. To exit, touch the Exit () tab or Return () tab until the menu disappears.



There are some functions you cannot activate simultaneously when using the Menu () tab or **Q.MENU** button. You cannot select the menu items grayed out on the screen. Refer to the troubleshooting for examples of unworkable combinations of functions and menu items. ➔ page 130



using the menu items

MENU ITEMS

- Accessible items in menu vary depending on the operation mode.
- For operation details, see the corresponding page.

Recording menu items (☰)

● : Possible X : Not possible

Operating mode	Movie (🎬)/ Photo (📷)	Default value	Page
iSCENE	●/●	Auto	59
Video Resolution	●/X	[HD]1080/60i	60
Video Quality	●/X	Fine	61
Photo Resolution	X/●	2880x1620	61
Photo Sharpness	X/●	Normal	62
White Balance	●/●	Auto	62
Aperture	●/●	Auto	64
Shutter	●/●	Auto	65
EV	●/●	0	67
Back Light	●/●	Off	68
Focus	●/●	Auto	69
Digital Effect	●/●	Off	71
Fader	●/X	Off	72
Tele Macro	●/●	Off	73
Cont. Shot	X/●	Off	73
Wind Cut	●/X	Off	74
Digital Zoom	●/●	Off	74
Self Timer	●/●	Off	75
Time Lapse REC	●/X	Off	76
Quick View	●/●	On	78
Guideline	●/●	Off	79

Playback menu items (≡)

Operating mode		Movie (🎬)	Photo (📷)	Default value	Page
Play Option		●	X	Play All	79
Highlight		●	X	-	80
Playlist		●	X	-	97~98
Delete		●	●	-	100
Protect		●	●	-	99
Copy *		●	●	-	101
Edit	Divide	●	X	-	93
	Combine	●	X	-	95
File Info		●	●	-	80
Slide Show Start		X	●	-	46
Slide Show Option	Interval	X	●	1Sec	80
	Effect	X	●	Off	80
	Music	X	●	On	80
Print Mark (DPOF) (memory card only)		X	●	-	102

- Items marked with * are available only with HMX-H104BN/HMX-H105BN/HMX-H106SN models.

Setting menu items (⚙)

Operating mode	Default value	Page
Storage Type *	Memory	81
Storage Info	-	81
Format	-	82
File No.	Series	82
Time Zone	Home	83
Date/Time Set	-	84
Date type	JAN/01/2009	84
Time Type	12 Hr	84
Date/Time Display	Off	85
LCD Brightness	17	85

↳ Continued...

using the menu items

Setting menu items (⚙)

		Default value	Page
Beep Sound		On	86
Shutter Sound		On	86
Auto Power Off		5 Min	87
Quick On STBY		5 Min	87
Remote		On	88
PC Software		On	88
USB Connect		Mass Storage	89
HDMI TV Out		Auto	89
Analog TV Out		Component 1080i	89
TV Connect Guide	HDMI	-	90
	Component	-	90
	Composite	-	90
TV Display		On	90
REC Lamp		On	91
Default Set		-	91
Language		-	91
Demo		On	92
Anynet+ (HDMI-CEC)		On	92



- Some items will not appear depending on the storage media type.
- There are some functions you cannot activate simultaneously when using Menu (⏏) tab or **Q.MENU** button. You cannot select the menu items that are grayed out on the screen. Refer to the Troubleshooting for examples of unworkable combinations of functions and menu items. ➡page 130
- Items marked with * are available only with HMX-H104BN/HMX-H105BN/HMX-H106SN models.

QUICK MENU ITEMS



- Accessible items in quick menu vary depending on the operation mode.
- For operation details, see the corresponding page.


Recording menu items

● : Possible X : Not possible

Operating mode	Movie () / Photo ()	Default value	Page
Storage *	● / ●	Memory	81
iSCENE	● / ●	Auto	59
Resolution	● / ●	Movie: [HD]1080/60i, Photo: 2880x1620	60/61
WB	● / ●	Auto	62
EV	● / ●	0	67
Focus	● / ●	Auto	69

Playback menu items

Operating mode	Movie ()	Photo ()	Default value	Page
Storage *	●	●	Memory	81
Highlight	●	X	-	80
Playlist	● (thumbnail)	X	-	97~98
Delete	●	●	-	100
Edit	●	X	-	93~95
File Info	●	●	-	80
Slide Show	X	●	-	46
Protect	● (thumbnail)	●	-	99
Print Mark (memory card only)	X	●	-	102

- Some items will not appear depending on the storage media type.
- There are some functions you cannot activate simultaneously when using Menu () tab or **Q.MENU** button.
You cannot select the menu items that are grayed out on the screen. Refer to the troubleshooting for examples of unworkable combinations of functions and menu items. ➡ page 130
- Items marked with * are available only with HMX-H104BN/HMX-H105BN/HMX-H106SN models.








using the menu items

RECORDING MENU ITEMS

You can setup the menu items for movie and photo image recording.

iSCENE ()

This HD camcorder automatically sets the shutter speed and aperture according to the subject brightness for optimum recording. You can also specify one of the following modes depending on subject conditions, recording environment or purpose of filming.




Settings	Contents	On-screen display
Auto	<ul style="list-style-type: none">Auto balance between the subject and the background.To be used in normal conditions.The shutter speed is automatically adjusted from 1/60 to 1/250 per second, depending on the scene.	None
Sports	<ul style="list-style-type: none">Reduces blurring when recording rapidly moving subjects such as in golf or tennis. If the Sports mode is used under a fluorescent light, the image may flicker. In this case, use the Auto mode for recording.	
Portrait	<ul style="list-style-type: none">Select it to record natural skin color.The portrait mode is most effective when used outdoors.The shutter speed is automatically adjusted from 1/60 to 1/1000 per second.	
Spotlight	<ul style="list-style-type: none">Prevents overexposure of subject's face, etc. when strong light strikes the subject, as in a wedding or on a stage.	
Beach/Snow	<ul style="list-style-type: none">Prevents under exposure of subject's face, etc. in a place where light reflection is intense, such as at the beach in midsummer or on a ski slope.	
Food	<ul style="list-style-type: none">Select it to give food rich color.	
Candle Light	<ul style="list-style-type: none">Select it to record the subtle candlelight.	
Indoor	<ul style="list-style-type: none">Controls the white balance according to indoor ambience.	



- You can check the selected iSCENE mode on the on-screen information display. However, nothing will appear in Auto mode.
- This function will be set to “**Auto**” in the EASY Q mode.
- When you specify “**Aperture:Manual**” or “**Shutter:Manual,**” the iSCENE mode is cancelled. (Manual Aperture/Manual Shutter Priority)

Video Resolution ()

- You can select the resolution of movie image to be recorded.
- Regarding detailed image capacity, see page 29.

Settings	Contents	On-screen display
[HD] 1080/60i	Records in the Full HD (1920x1080 60i) format. “60i” indicates the camcorder will record in interlaced scan mode at 60 fields per second. This resolution is ideal for TV playback.	
[HD] 720/60p	Records in the HD (1280x720 60p) format. “60p” indicates the camcorder will record in progressive scan mode at 60 frames per second.	
[SD] 480/60p	Records in the SD (720x480 60p) format. “60p” indicates the camcorder will record in progressive scan mode at 60 frames per second.	






- Recorded files are encoded with Variable Bit Rate (VBR). VBR is an encoding system that automatically adjusts the bit rate according to the recording image.
- High resolution images occupy more memory space than low resolution images. If the higher resolution is selected, there is less space to record movie images in the memory.

using the menu items

Video Quality ()

- You can select the quality of a movie to be recorded.
- Regarding detailed image capacity, see page 29.

Settings	Contents	On-screen display
Super Fine	Records in the highest quality.	
Fine	Records in the high quality.	
Normal	Records in the normal quality.	




 The lower quality of a movie image is, the higher compression rate is. The recordable time of a movie image is increased, but its quality is decreased.

Photo Resolution ()

- You can select the resolution of photo image to be recorded.
- Regarding detailed image capacity, see page 29.

Settings	Contents	On-screen display
2880x1620	Records in the 2880x1620 resolution.	
1920x1080	Records in the 1920x1080 resolution.	





- 
- For photo development, the higher the resolution, the finer the image quality.
 - The number of recordable images varies depending on the recording environment.
 - Photo images that are recorded on your HD camcorder may not playback properly on other digital devices that do not support this photo size.
 - High resolution images occupy more memory space than low resolution images. If a higher resolution is selected, there is less space to store photos in the memory.

Photo Sharpness (📷)






This function allows the user to obtain sharper photo images by processing the image after it is shot.

Settings	Contents	On-screen display
Normal	The photo images appear with sharp edges and are suitable for printing.	
Soft	Smooths the edges of photo images.	
Sharp	The edges of the image are emphasized so it can be clearly viewed but a noise can be generated.	

White Balance (📺📷)

This HD camcorder automatically adjusts the color of subject.

Change the white balance setting depending on the recording conditions.

Settings	Contents	On-screen display
Auto	This option is generally used to control the white balance automatically.	None
Daylight	This controls the white balance according to the outdoor ambience, especially for close up and when the subject is of one dominant color.	
Cloudy	This option is used when you make a recording in cloudy weather.	
Fluorescent	This option is used when you make a recording under white fluorescent lights.	
Tungsten	This option is for when there is less than 3200K of tungsten light being used.	
Custom WB	You can manually adjust white balance to match the light source or situation	

using the menu items

Setting white balance manually:

1. Touch “Custom WB.”

- The “ Set White Balance” indicator is displayed.

2. Frame a white object such as a piece of white paper so that it fills the screen.

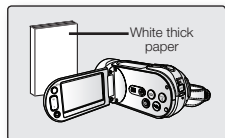
- Use an object that is not transparent.
- If the object that fills the screen is not focused, correct the focus using “**Focus: Manual**” → page 69

3. Touch the OK () tab.

- The white balance setting will be applied and () indicator is displayed.




- A subject can be shot under various types of lighting conditions indoors (natural, fluorescent, candlelight, etc.). Because the color temperature is different depending on the light source, the subject tint will differ depending on the white balance settings. Use this function for a more natural result.
- It is recommended that you specify “**Digital Zoom: Off**” (→ page 74) before setting white balance.
- Do not use a colored object when setting white balance: The appropriate tint cannot be set.
- This function will be set to “**Auto**” in the EASY Q mode.
- Reset the white balance if lighting conditions change.
- During normal outdoor recording, setting to auto may provide better results.






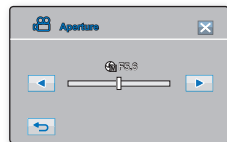
Aperture ()

The aperture stop of a lens can be adjusted to control the amount of light reaching the image sensor. This is similar to the way the pupil of the human eyes reacts to bright light.

Settings	Contents	On-screen display
Auto	This option automatically adjusts aperture value (F-Number) according to the environmental light conditions.	None
Manual	You can adjust the overall image brightness by controlling the aperture.	 FX.X

Setting the aperture manually:


- **Opening the aperture (reduce the aperture value)**
Objects closer and further away than the focused subject will be out of focus.
You will see that the background is out of focus when you focus on the subject.
 - **Closing the aperture (increase the aperture value)**
The range in focus expands forward and backward.
You will see that both the subject and the background are all in focus if you use a high aperture stop.
 - Touch the decrease () or increase () tab to adjust the aperture while viewing the image on the LCD screen.
The available aperture range: F1.8 ~ F16
-  • The possible setting range for the aperture varies with zooming.
- When you specify **“Aperture: Manual,”** the iSCENE mode is cancelled and **“Shutter”** is set to **“Auto”** automatically. (Manual Aperture Priority)



using the menu items

Shutter (📷📷)

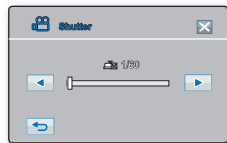
The HD camcorder automatically sets the shutter speed depending on the subject brightness. You can also manually adjust the shutter speed according to the scene conditions.

Settings	Contents	On-screen display
Auto	The HD camcorder automatically sets the appropriate aperture value.	None
Manual	Shutter speed can be set to 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, or 1/10000.	 S.1/XXX

Setting the shutter speed manually

You can set the shutter speed manually. A fast shutter speed can freeze the motion of a fast moving subject and a slow shutter speed can blur the subject to give the impression of motion.

- Fast shutter speed allows a fast-moving subject to be captured one frame at a time vividly. Use these settings when an automatic adjustment does not work well with “**Sports**” mode in “**iSCENE.**” ➡ page 59



Recommended shutter speed when recording

Shutter speed	Conditions
1/60	The shutter speed is fixed at 1/60 second. Color bands that appear when focusing on a TV screen become narrower.
1/100	The shutter speed is fixed at 1/100 second. Indoor sports such as basketball. The flickering that occurs when shooting under a florescent light or mercury-vapor lamp is reduced.
1/250, 1/500, 1/1000	Moving cars, trains or other rapidly moving vehicles such as roller coasters.
1/2000, 1/4000, 1/10000	Outdoor sports such as golf and tennis.



- The image may not seem smooth when a high shutter speed is set.
- This function will be set to **“Auto”** in the EASY Q mode.
- When recording with a shutter speed of 1/1000 or higher, make sure the sun is not directly shining into the lens.
- When you specify **“Shutter: Manual,”** the iSCENE mode is cancelled and **“Aperture”** is set to **“Auto”** automatically. (Manual Shutter Priority)
- In case of photo, the maximum shutter speed is limited to 1/500.

using the menu items


EV (Exposure Value) ()

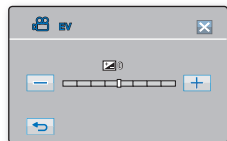
The HD camcorder usually adjusts the exposure automatically. You can also manually adjust the exposure depending on the recording conditions.

Setting the exposure manually:

When manually setting the exposure, the default setting appears as the value is automatically adjusted according to the environmental light conditions.

Touch the decrease () or increase () tab to adjust the exposure while viewing the image on the LCD screen.

- Exposure value can be set between “-2.0” and “+2.0.”
- The exposure value setting will be applied and the () indicator and setting value are displayed.



Manual exposure is recommended in situations listed below:


- When shooting using reverse lighting or when the background is too bright.
- When shooting on a reflective natural background such as at the beach or when skiing.
- When the background is overly dark or the subject is bright.



This function will be set to “0” in the EASY Q mode.

Back Light ()

When subject is lit from behind, this function will compensate for lighting so that the subject is not too dark.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	<ul style="list-style-type: none">• Backlight compensation is executed.• Backlight compensation brightens the subject quickly.	

Back lighting influences recording when the subject is darker than the background:

- The subject is in front of a window.
- The person to be recorded is wearing white or shiny clothes and is placed against a bright background; the person's face is too dark to distinguish his/her features.
- The subject is outdoors and the background is overcast.
- The light sources are too bright.
- The subject is against a snowy background.



<Back light off>



<Back light on>





This function will be set to “**Off**” in the EASY Q mode.

using the menu items



Focus ()

The HD camcorder usually focuses on a subject automatically (auto focus). When the HD camcorder is turned on, auto-focus will always be set. You can also manually focus a subject depending on the recording conditions.


Settings	Contents	On-screen display
Auto	In most situations, it is better to use the automatic focus feature, as it enables you to concentrate on the creative side of your recording.	None
Manual	Manual focusing may be necessary under certain conditions that make automatic focusing difficult or unreliable.	
Touch Point	This function is to focus on the point you touch.	

Focusing manually during recording


This HD camcorder automatically focuses a subject from close-up to infinity. However, the correct focus may not be obtained depending on the recording conditions. In this case, use the manual focus mode.

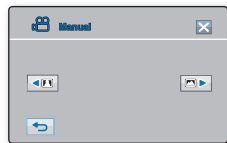
1. Touch **"Focus"** → **"Manual."**
 - The manual focus adjustment indicator appears.
2. Touch the nearer subject () or further subject () tab to adjust the focus, while viewing the subject on the LCD screen.

Focusing on a further subject

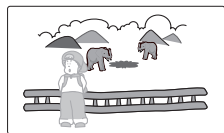
To focus on a further subject, touch the further subject () tab.

Focusing in a nearer subject

To focus on a nearer subject, touch the nearer subject () tab.







<Nearer subject>



<Further subject>

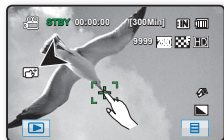


- The nearer or further icon ( / ) appears in the center when focus adjustment reaches the end.
- The adjusted value is applied right after touching the () or () tab.

Touch Pointing

Touch the desired point to focus in the square area on the touch panel.

1. Touch “**Focus**” → “**Touch Point.**”
2. To exit, touch the Exit (X) tab or Return (↩) tab until the menu disappears.
3. Focus on the particular point by touching the desired point.



In the following situations, you may obtain better results by adjusting the focus manually.

- A picture containing several objects, some close to the HD camcorder, others further away.
- A person enveloped in fog or surrounded by snow.
- Very shiny or glossy surfaces like a car.
- People or objects moving constantly or quickly like an athlete or a crowd.







- The focus function will alternate between manual focus and auto focus. With auto focus, no indication will appear on the screen.
- The manual focus function can move the focus to the desired area. The auto focus function automatically adjusts the focus in the center.
- Use the zoom function to catch the desired target before manually adjusting the focus. If you use the zoom function after manual focusing, refocusing is required.
- Check that the digital zoom function has been set before manual focusing. If the digital zoom is set, you cannot correctly adjust the focus. Cancel the digital zoom function.
- If you are inexperienced in the use of HD camcorders, we recommend that you use auto focus.
- This function will be set to “**Auto**” in the EASY Q mode.

using the menu items

Digital Effect ()

The digital effect enables you to give a creative look to your recording. Select the appropriate digital effect for the type of picture that you wish to record and the effect you wish to create.

There are 4 different digital effect options.

Settings	Contents	On-screen display
Off	Disables the function.	None
1 Black & White	This mode changes the images to black and white.	
2 Sepia	This mode gives the images a reddish brown pigment.	
3 Negative	This mode reverses the colors, creating a negative image.	
4 Art	This mode gives the images a coarse effect.	



This function will be set to “Off” in the EASY Q mode.

Fader (🎞️)

You can give your recording a professional look by using special effects such as fade in at the beginning of a sequence or fade out at the end of a sequence.

Settings	Contents	On-screen display
Off	Disables the function.	None
In	As soon as you start recording, it will fade in.	
Out	When the recording is done, it will fade out.	
In-Out	When you start or stop recording, the fader will be function accordingly.	

Fade in

Press the **Recording start/stop** button when “Fader” is set to “In.”

Recording starts with a dark screen and then the image and sound are faded in.

Fade out

Press the **Recording start/stop** button when “Fader” is set to “Out.”

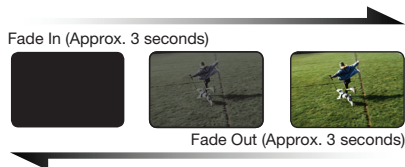
Recording stops as the image and sound are faded out.

Fade in-out

Press the **Recording start/stop** button when “Fader” is set to “In-Out.”

Recording starts with a dark screen and then the image and sound are faded in.

Recording stops as the image and sound are faded out.




This function is disabled after being used one time.

using the menu items

Tele Macro ()

- This function is used to record a distant subject that is approaching.
- The effective focal distance in the Tele macro mode is between 1 cm (0.4 inches) and 50 cm (19.7 inches).


Settings	Contents	On-screen display
Off	Disables the function.	None
On	Tele macro is executed.	



- When recording in Tele macro mode, the focus speed may be lowered.
- Use a tripod (not supplied) to prevent hand shake in the Tele macro mode.
- Avoid shadows when recording in the Tele macro mode.
- As the distance to the subject decreases, focusing area narrows.
- When you can not get proper focus, move the **Zoom** lever to adjust the focus.
- This function will be set to “**Off**” in the EASY Q mode.

Cont. Shot ()

- Continuous shot allows the user to take consecutive images of a moving object.
- Records images continuously up to the storage capacity.

Settings	Contents	On-screen display
Off	Records only one photo image.	None
On	8 photo images are recorded in 1 second when the PHOTO button is pressed.	




- When “**Cont. Shot**” is set to “**On**,” the flash function is automatically set to off and the resolution is fixed to 1920 x 1080.
- When “**Cont. Shot**” is set to “**Off**,” the resolution is reset to the previous setting but the flash function still remains Off.
- When an error (memory full, etc) during continuous shot, the recording stops and an error message is displayed.

Wind Cut (🎙️)

You can reduce wind noise when recording sound from the built-in microphone.

If **“Wind Cut: On”** is set, the low-frequency components in the sound picked up by the microphone will be cut off during recording: This makes it easier to hear voice and sound during playback.

- Use the Wind Cut when recording in windy places such as a beach.

Settings	Contents	On-screen display
Off	Disable the function.	None
On	Minimizes wind noise or other noise while recording.	



- When the **“Wind Cut”** is **“On,”** some low frequency sound is eliminated along with the sound of the wind.
- Make sure the **“Wind Cut”** is set to **“Off”** when you want the microphone to be sensitive as possible.

Digital Zoom (👤📷)

You can select the maximum zoom level in case you want to zoom to a level greater than optical zoom magnification. Up to 10x zoom is performed digitally.



This right side of the bar shows the digital zooming factor.
The zooming zone appears when you select the zooming level.

Settings	Contents	On-screen display
Off	Up to 10X zoom is performed optically.	None
On	Up to 10X zoom is performed optically, and after that, up to 10X zoom is performed digitally. (Zooming more than 10X is achieved digitally, up to 100X when combined with optical zoom.)	None




- The image quality may deteriorate depending on how much you zoom in on the subject.
- Maximum zooming may result in lower image quality.

using the menu items

Self Timer ()

When you use the self timer function, recording begins automatically in 10 seconds.

Settings	Contents	On-screen display
Off	Disable the function.	None
10 Sec	Recording begins automatically in 10 seconds by pressing the Recording start/stop or PHOTO button.	

Self timer recording

1. Set “Self Timer” to “10 Sec.”

2. To record movie images, press the **Recording start/stop** button.

To take photo images, press the **PHOTO** button.

- Self timer starts counting down from 10 with a beep sound.
- At the last second of the countdown, recording starts automatically.
- If you want to cancel the self timer function before recording, press the **Recording start/stop** or **PHOTO** button again.



- Using a tripod (not supplied) is recommended during self record.
- This function is disabled after being used one time.



<When recording a movie image>

Time Lapse REC (📷)

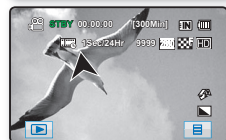
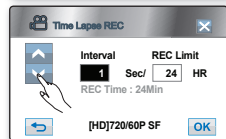
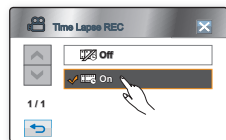
- Time Lapse REC records still images at specific intervals you can set and plays them as one movie file.
- This function is useful to observe the movement of clouds, the changes in daylight or blooming flowers, etc.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	When you start movie recording, images of the subject are captured and saved to the storage media by set interval and total recording period.	

Setting the Time Lapse REC mode:

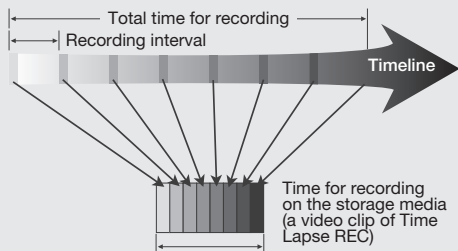
To record in the Time Lapse REC mode, you need to set the recording interval and total recording time in the menu.

1. Touch the Menu (☰) tab.
2. Touch the up (⬆️)/down (⬇️) tab until “Time Lapse REC” is displayed.
3. Touch “Time Lapse REC” and touch “On.”
 - The recording interval and total recording time items are displayed.
4. Touch the up (⬆️)/down (⬇️) tab to set a desired recording interval (“Sec”).
 - “Interval”: Image of the subject is captured by set interval.
1 → 3 → 5 Sec
5. Touch hour field, then touch the up (⬆️)/down (⬇️) tab to set a total recording time (“HR”).
 - “REC Limit”: Total recording time, from the beginning to the end of the interval recording.
24 → 48 → 72 Hr
 - While you set the preparatory settings (recording interval and total recording time), the approximate time-lapse recording time will be displayed on the menu screen.
6. To exit, touch the Exit (✕) tab or Return (⬅️) tab repeatedly until the menu disappears.
7. After setting the Time Lapse REC mode, press the **Recording start/stop** button.
 - The Time Lapse REC starts.
 - While playing back, it will display 60 images per second. (Sound is not available.)
For example, if the recording interval was “1” second and the total recording time was “24” hours, images are automatically captured and saved in storage media at every 1 second for 24 hours.



↪ Continued...

Example of Time Lapse REC



Time Lapse REC records image frames at the predefined interval over the total recording time to produce a time-lapse video.

Time Lapse REC is useful for filming in the following situations:

- Blooming flowers
- Insect's skin-casting
- Clouds rolling by in the sky



(The Time Lapse movie file appears with the Time Lapse REC (flower icon).)



- This function is disabled after being used one time.
- For Time Lapse REC, the [HD]720/60p resolution and Super Fine quality are supported only.
- 60 captured images compose a video of 1 second length. Since the minimum length of a video to be saved by your camcorder is one second, the interval defines how long the Time Lapse Recording should be taken. For example, if you set the interval to "3 Sec," Time Lapse Recording should be taken for at least 3 minutes to record a minimum video length of 1 second (60 images).
- Once the Time Lapse REC finishes recording for its total recording time, it switches to the standby mode.
- Press the **Recording start/stop** button if you want to stop the Time Lapse REC.
- Audio is not recorded during Time Lapse Recording.
- When a video recording fills up 1.8GB of storage media, a new recording file is automatically started at that point.
- When the battery is exhausted during Time Lapse REC, it saves recording up to that point and switches to standby mode. After a while, it displays a warning message, then turns off automatically.
- When memory runs out while performing Time Lapse REC, the camcorder switches to the standby mode after saving what was recorded so far.
- During Time Lapse REC, the zoom and focus functions are fixed so that you cannot change the settings. Even though the subject is moved, the focus cannot be changed.
- We recommend using the AC power adaptor when using the Time Lapse REC function.

using the menu items

Quick View (📷📺)

This function enables you to check the just recorded movie or photo without switching to the play mode.

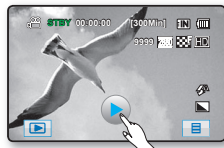
Settings	Contents	On-screen display
Off	Disable the function.	None
On	You can review the recording immediately in STBY mode.	None

Using the Quick View

1. Set “**Quick View**” to “**On.**”
2. To record movie images, press the **Recording start/stop** button and press the button to stop recording again.
To take photo images, press the **PHOTO** button.
 - The Quick View (📺) appears on the center of the screen in STBY mode.
3. Touch the Quick View (📺) tab to review the recording.
4. To quit the Quick View, touch the Return (↩) tab.









- Touch the Delete (🗑) tab to delete the recording which is being played back. Selecting “**No**” in the delete confirm screen will quit the Quick View, and switch to STBY mode.
- For photo images recorded with the Cont. Shot, only the most recent file is played.



Guideline ()

- Guideline displays certain patterns on the LCD screen so that you can easily set the image composition when recording movie or photo images.
- The HD camcorder provides 3 types of guidelines.

Settings	Contents	On-screen display
Off	Disable the function.	None
	Enables you to center the subject for proper recording.	
	Enables you to place the subject within a safety zone which prevents it being cut when editing in the 4:3 for left and right and 2.35:1 for top and bottom.	
	Enables you to place the subject in the center square for proper positioning.	









- Positioning the subject at the cross point of the guideline makes a balanced composition.
- The guidelines on the screen do not appear on the images actually recorded.

PLAYBACK MENU ITEMS

You can setup these menu items for playing movie and photo images.

Play Option ()

You can setup play options for movie image playback.

Settings	Contents	On-screen display
Play All	Plays movie images continuously starting from the selected image to the last one, then returns to the thumbnail index view.	
Play One	Plays the selected movie image only and returns to the thumbnail index view.	
Repeat All	Repeats playing all the video clips until the Return () tab is touched.	
Repeat One	Repeats playing the selected video only until the Return () tab is touched.	

using the menu items

Highlight (📹)

Shows a section of recorded movie images at random according to the total play time and number of files.

Settings	Contents	On-screen display	Time Recorded	Highlight Playback Time
			Less than 4 sec.	Full playback
			4 to 30 sec.	Plays 5 seconds.
Recent	Shows a section of the videos that were created within the last 24 hours.	📹	30 sec. to 5 min.	Plays 5 seconds of each 30 second section.
			5 min. to 10 min.	Plays 5 seconds of each 1 minute section.
			10 min. to 30 min.	Plays 5 seconds of each 2 minute section.
All	Shows a section of all movie images.	📺	Over 30 min.	Plays 5 seconds of each 5 minute section.

Slide Show Option (📷)

You can set the slide show option (Interval, Effect, and Music).

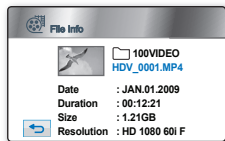
Settings	Contents	On-screen display
Interval	Photo images play back continuously in the set slide show interval (1sec or 3sec).	None
Effect	Continuously plays back photo images with the fade in / out effect between image transitions.	None
Music	You can turn the built-in background music on or off.	None



Loading time may vary depending on the photo image size.

File Info (📹 📷)

It shows the image information. You can view the file name, created date and size, etc.





SETTING MENU ITEMS

You can setup the date/time, OSD language, video output, and display settings of the HD camcorder.

Storage Type (HMX-H104BN/HMX-H105BN/HMX-H106SN only)

You can record movie and photo images on the built-in memory or a memory card, so you should select the desired storage media before starting recording or playback.

Settings	Contents	On-screen display
Memory	Records or play backs images in the built-in memory.	
Card	Records or play backs images in a memory card.	

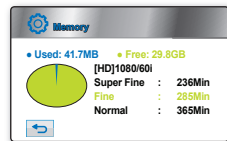
Storage Info

This shows you the storage information (the storage media, used space and available space, recordable time according to the quality). So you can find out how long you will be able to record on the storage media. Make sure to set the appropriate storage media.

Settings	Contents
Memory	You can view the used space, available space, and the recordable time on the built-in memory.
Card	You can view the used space, available space, and the recordable time on the memory card.



- The memory card's information appears by touching "Storage Info." (HMX-H100N only)
- When you format the built-in memory or memory card, a minimum of 40 MB is assigned for system storage, which cannot store any movie or photo data. (HMX-H104BN only)



using the menu items

Format

You can use the “**Format**” function to completely delete all files and options on the storage media, including protected files.

Settings	Contents	On-screen display
Memory	You can format the built-in memory.	None
Card	You can format the memory card.	None



- If you execute the format function, all files will be deleted completely and the erased files cannot be recovered.
- Formatting the storage media using a different device will cause a “**Not Formatted**” error.
- A memory card with the protection tab set to lock will not be formatted. ➡ page 30
- Format does not perform if the battery is low. We recommend using the AC power adaptor when formatting.
- The memory card format is executed by touching “**Format**.” (HMX-H100N only)

File No.

File numbers are assigned to images in the order they were recorded.

Settings	Contents	On-screen display
Series	Assigns file numbers in sequence even if the memory card is replaced with another one or after formatting or deleting all files. The file number is reset when a new folder is created.	None
Reset	Resets the file number to 0001 even after formatting or deleting all files or inserting a new memory card. Use “ Reset ” when the folder and files cannot be created anymore because the camcorder has reached its limit.	None

Time Zone

You can easily set the clock to the local time when using your camcorder while traveling.

Settings	Contents	On-screen display
Home	<ul style="list-style-type: none"> The clock will be used according to your setting on the “Date/Time Set” menu. Select it when using this camcorder for the first time or when returning the clock to your hometown date/time setting. 	None
Visit	<ul style="list-style-type: none"> When you visit a different time zone, it allows you to use the local time without changing your hometown time setting. The clock will be adjusted in accordance with the time difference between the two locations. 	

Cities used to set the time zone

Cities	Time zone	Cities	Time zone
London, Lisbon	+ 00:00	Adelaide	+ 09:30
Rome, Paris, Berlin, Stockholm, Madrid, Frankfurt	+ 01:00	Guam, Sydney, Brisbane	+ 10:00
Athens, Helsinki, Cairo, Ankara	+ 02:00	Solomon Islands	+ 11:00
Moskva, Riyadh	+ 03:00	Wellington, Fiji	+ 12:00
Teheran	+ 03:30	Samoa, Midway	- 11:00
Abu Dhabi, Muscat	+ 04:00	Honolulu, Hawaii, Tahiti	- 10:00
Kabul	+ 04:30	Alaska	- 09:00
Tashkent, Karachi	+ 05:00	LA, San Francisco, Vancouver, Seattle	- 08:00
Calcutta, New Delhi	+ 05:30	Denver, Phoenix, Salt Lake City	- 07:00
Almaty, Kathmandu	+ 05:45	Chicago, Dallas, Houston, Mexico City	- 06:00
Dacca	+ 06:00	New York, Miami, Washington D.C., Montreal, Atlanta	- 05:00
Yangon	+ 06:30	Caracas, Santiago	- 04:00
Bangkok	+ 07:00	Buenos Aires, Brasilia, Sao Paulo	- 03:00
Hong Kong, Beijing, Taipei, Singapore, Manila	+ 08:00	Fernando de Noronha	- 02:00
Seoul, Tokyo, Pyongyang	+ 09:00	Azores, Cape Verde	- 01:00



The times here are based on GMT (Greenwich Mean Time).

using the menu items

Date/Time Set

Set the current date and time so they can be recorded correctly. ➡ page 25

Date Type

You can select the desired date type.

Settings	Contents	On-screen display
2009/01/01	Displays the date in the order of year, month (two-digit) and day.	2009/01/01
JAN/01/2009	Displays the date in the order of month, day and year.	JAN/01/2009
01/JAN/2009	Displays the date in the order of day, month and year.	01/JAN/2009
01/01/2009	Displays the date in the order of day, month (two-digit) and year.	01/01/2009



This function depends on “**Date/Time Display**” setting.

Time Type

You can select the time format to display.

Settings	Contents	On-screen display
12 Hr	The time is displayed in 12 hour units.	12:00 AM
24 Hr	The time is displayed in 24 hour units.	00:00



This function depends on “**Date/Time Display**” setting.

Date/Time Display

You can set the date and time to display on the LCD screen.

- Before you use the **"Date/Time Display"** function, you must set the date and time. ➡ page 25

Settings	Contents	On-screen display
Off	Current date and time information is not displayed.	None
Date	Displays the current date.	JAN/01/2009
Time	Displays the current time.	12:00AM
Date & Time	Displays the current date and time.	JAN/01/2009 12:00AM



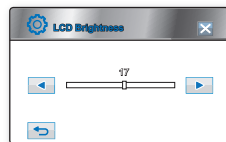
- The date/time will read **"JAN/01/2009 12:00 AM"** in the following conditions:
 - The built-in rechargeable battery becomes weak or dead.
- This function depends on **"Date Type"** and **"Time Type"** setting.

LCD Brightness

- Your HD camcorder is equipped with a 2.7 inch wide color Liquid Crystal Display (LCD) screen, which enables you to view what you are recording or playing back directly.
- Depending on the conditions under which you are using the HD camcorder (indoors or outdoors for example), you can adjust LCD brightness.
- Touch the decrease (◀) or increase (▶) tab to increase or decrease the value of a desired item.
- You can set values for LCD brightness between 0 and 35.



Adjusting the LCD screen does not affect the brightness of the image to be recorded.



using the menu items

Beep Sound

You can turn the beep sound on or off.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	When on, a beep will sound every time a button is pressed.	None



- The beep sound is off when recording in movie mode.
- When beep sound is set to off, the power on/off sound is off.

Shutter Sound

You can turn the shutter sound on or off.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	When on, the shutter will sound with each press of the PHOTO button.	None



- The shutter sound is not heard in the following conditions:
- In case of using the **PHOTO** button during video recording

Auto Power Off

You can set the HD camcorder to automatically turn off when there is no operation for 5 minutes.

Settings	Contents	On-screen display
Off	The HD camcorder does not turn off automatically.	None
5 Min	For power saving purposes, the HD camcorder will automatically turn off if there is no operation for 5 minutes.	None



Auto Power Off does not work in the following situations:

- When a USB cable is connected.
- When the HD Camcorder is connected to the AC adapter.
- While the Quick On STBY function is in operation.
- While the Demo function is in operation.
- While in recording, playing (except pause), Photo slide show.

Quick On STBY

When are going to record frequently for an extended time, use the Quick On STBY function. In standby mode, closing the LCD screen will commence the Quick On STBY mode to reduce energy consumption. Once you are ready to record again, this function enables to the camcorder to come on quickly from the power saving mode.

Settings	Contents	On-screen display
Off	Without entering Quick On STBY mode, the power turns off.	-
5 Min	After staying in Quick On STBY mode for 5 minutes, the power turns off.	-
10 Min	After staying in Quick On STBY mode for 10 minutes, the power turns off.	-
20 Min	After staying in Quick On STBY mode for 20 minutes, the power turns off.	-




- When entering Quick On STBY mode, the Mode indicator blinks.
- After the time is set in **“Quick On STBY”**, the power is off automatically.
- Turning off the camcorder after use is always recommended to reduce the energy consumption, however, you can effectively use the Quick On STBY function for the frequent shooting conditions in the specified time schedule.
- The Quick On STBY mode is not available in the following conditions:
 - When the LCD screen is open.
 - When a video cable (HDMI, Component/AV) or the USB cable is connected to the camcorder.
 - When operating the buttons on the camcorder.
 - If the LCD screen was not closed in the video standby mode.

using the menu items

Remote

This function allows you to enable or disable the remote control for use with the HD camcorder.

Settings	Contents	On-screen display
Off	Disable the function. The () indicator appears when you use the remote control.	None
On	You can control the HD camcorder with the remote control.	None

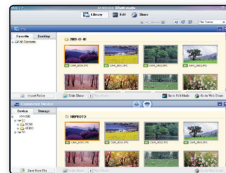
PC Software

- Editing application software for PC is stored in the boot-up flash memory of this camcorder.
- The editing software runs automatically once the camcorder is connected to a PC using a USB cable and the PC Software is set to On.

Settings	Contents	On-screen display
Off	Recognizes this camcorder as a USB mass storage device with PC software not executed.	None
On	Automatically runs the editing PC software stored in this camcorder to the PC connected.	None



For more information about the built-in editing software on your camcorder, refer to pages 108~111.



<Intelli-studio>

USB Connect

Using the USB cable, you can connect your HD camcorder to a PC to copy your movie images and photo images from the storage media, or to a printer to print your photo images.

Settings	Contents	On-screen display
Mass Storage	Connect to a PC.	None
PictBridge	Connect to a PictBridge printer.	None





HDMI TV Out

You can set the HDMI video output to match the TV you have connected.

Settings	Contents	On-screen display
Auto	According to the connected TV type, the video resolution is automatically set.	None
480p	Select it when connecting to an SD resolution TV that supports progressive scan.	None

Analog TV Out

- You can set the component or composite video output to match the TV you have connected.
- This HD camcorder provides the two-in-one component/AV cable that fits the purpose of the component and the AV cable. Therefore, when using the component/AV cable, you must check the right method for the TV output by setting the **"Analog TV Out"** menu.

Settings	Contents	On-screen display
Component 1080i	Use this setting only when connecting to an Full HDTV (1920 x 1080).	
Component 480p	Select it when connecting to an SD resolution TV that supports progressive scan.	
Component 480i	Select when connecting to an SD resolution TV that does not support progressive scan.	
Composite	Select this when you connected the camcorder to a TV that only has a composite jack. (Video, Audio L/R).	



The OSD indicators for the Analog TV Out setting are displayed only when the component/AV cable is connected.

using the menu items

TV Connect Guide

Shows information on cables and jacks used to connect the camcorder to a TV.

Settings	Contents	On-screen display
HDMI	Select this when you want to know how to connect an HDMI cable to a TV.	None
Component	Select this when you want to know how to connect a component (Y/P_B/P_R, Audio L/R) cable to TV.	None
Composite	Select this when you want to know how to connect a composite (Video, Audio L/R) cable to TV.	None

TV Display

You can select the output path of the OSD (On-Screen Display). This allows you to set the OSD for viewing on the TV.

Settings	Contents	On-screen display
Off	The OSD appears in the LCD screen only.	None
On	The OSD appears in the LCD screen and a TV.	None

REC Lamp

You can turn the recording indicator on or off that lights during video or photo recording.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	Recording indicator is on during recording.	None

Default Set

You can restore menu settings to default (initial settings at the factory) ➔ pages 55-58



Initializing the HD camcorder settings to factory defaults does not affect recorded images.

Language

You can select a desired language to display the menu and messages. ➔ page 26

“English” → “한국어” → “Français” → “Deutsch” → “Italiano” → “Español” → “Português” → “Nederlands” → “Svenska” → “Suomi” → “Norsk” → “Dansk” → “Polski” → “Čeština” → “Slovensky” → “Magyar” → “Română” → “Български” → “Ελληνικά” → “Srpski” → “Hrvatski” → “Українська” → “Русский” → “中文” → “ไทย” → “Türkçe” → “ایرانی” → “العربية” → “IsiZulu”



“Language” options may be changed without prior notice.

using the menu items

Demo

Demonstration automatically shows you the major functions that are included with your HD camcorder so that you may use them more easily.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	Activates demonstration mode and shows various features.	None



- The Demo function will automatically come on after 5 minutes has passed in STBY mode.
- You can release the Demo function as follows:
 - Touching any point on LCD screen / changing mode / pressing the button (**Recording start/stop**, **Q.MENU**, **Display** (I□I), **EASY Q**, or **PHOTO** etc.)
- The Demo is not available if Auto Power Off is set to 5min.

Anynet+ (HDMI-CEC)

Anynet+ is an AV network system that enables you to control all connected Samsung AV devices with an Anynet+ supported Samsung TV remote control. You can use the Anynet+ function by connecting the HD camcorder to an Anynet+ supported TV with an HDMI cable and by setting "**Anynet+ (HDMI-CEC)**" to "**On.**"

For more details, refer to your Samsung TV's user manual.

Settings	Contents	On-screen display
Off	Disables the function.	None
On	Anynet+ is executed.	None

editing movie images

You can edit recorded movie images in various ways.
Movie image editing cannot be performed when the battery is low.

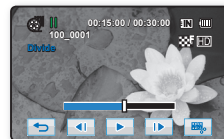
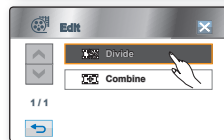
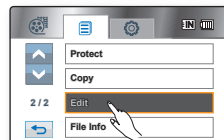
DIVIDING A MOVIE IMAGE

- This function works only in Play mode. ➔page 20
- You can divide a movie image as many times as you want in order to delete a section you no longer need.






The movie images will be divided in groups of two.

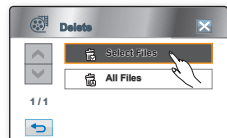
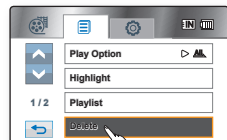
To divide a movie image

1. Touch the HD Movie (📹HD) tab or SD Movie (📹SD) tab.
 - The thumbnail index view appears accordingly.
2. Touch the Menu (☰) tab → “Edit” → “Divide.”
 - If the movie image thumbnail you want to edit is not on the screen, touch the up (⬆) or down (⬇) tab to change the page.
3. Touch a desired movie image.
 - The selected movie image will be paused.
4. Search the point of division by touching the playback related (▶, ⏸, ◀, ⏮, ⏭, ⏪, ⏩) tabs.
5. Touch the pause (⏸) tab at the point of division, then touch the **Cutting** (✂) tab.
 - The message “Divide a file at this point?” will appear.
6. Touch “Yes.”
 - The selected movie image is divided into two movie images. You can keep dividing images as long as they are 3 seconds in length.
 - If you want to delete an unwanted section of a movie image, divide the movie first, and then delete the image (section) you no longer need. After dividing the movie image, you can also combine other desired movie images (see page 95).
 - The second image of the divided image will be displayed at the end of the thumbnail index.



To delete a movie image you no longer need

1. Touch the Menu () tab → “Delete.”
2. Touch “Select Files”
 - Touch a desired movie image to select it for deletion.
 - The () indicator is displayed on the selected images. Touching the thumbnail image toggles between the thumbnail image being selected for deletion (the () indicator appears on image) or not (the () indicator is removed from image). Touch the OK () tab.
3. The message according to the selected option will appear. Touch “Yes.”
 - The selected images will be deleted.



Example: You can divide a movie image into two in order to delete a section you no longer need.

1. Before dividing

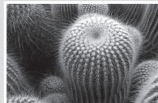


0~60 seconds

2. After image is divided at 30 second point.



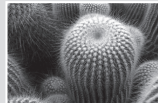
0~30 seconds



31~60 seconds

- The movie image is divided into two movie images.

3. After deleting first image.



0~30 seconds



- You can not delete a protected image. You must first release the protect function to delete it. → page 99
- Slow playback is useful when designating division points.
- The division point may drift before or after the designated point by approximately 0.5 seconds.
- **Cannot divide the video:**
 - You can not divide a video shorter than 6 seconds.
 - You can continue dividing a scene after the first 3 seconds from the start of playback or before the last 3 seconds to the end of playback.
 - Photo images cannot be divided.
 - The time lapse movie images cannot be divided.
- When the movie image is divided, the first image of the divided images is stored in the playlist again.
- You can also access it by using the **Q.MENU** button. Press the **Q.MENU** button. → Touch “Edit.” → Touch “Divide.”
- You can perform the Divide function when there is at least 9MB of memory space remaining on the built-in memory or memory card.
- A movie image can be divided into maximum 99 files.

editing movie images

COMBINING TWO MOVIE IMAGES

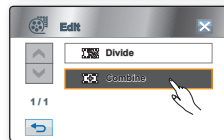
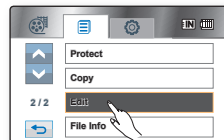
- This function works only in Play mode. ➔page 20
 - You can combine two different movie images.
1. Touch the HD Movie (HD) tab or SD Movie (SD) tab.
 - The thumbnail index view appears accordingly.
 2. Touch the Menu (Menu) tab → “Edit” → “Combine.”
 - If the movie image thumbnail you want to edit is not on the screen, touch the up (Up) or down (Down) tab to scroll to the next group of options.
 3. Touch movie images to be combined.
 - The (✓) indicator is displayed on the selected movie images.
 - Touching the movie thumbnail image toggles between the movie thumbnail image being selected for combining(the (✓) indicator appears on image) or not (the (✓) indicator is removed from image).
 - You cannot select and combine two different resolution images.
 4. Touch the OK (OK) tab.

The message “Combine selected two files?” will appear.
 5. Touch “Yes.”
 - The thumbnail of the first movie image will appear in the combined movie image.



- It is impossible to combine movie images with different resolutions. For example, if there is one movie image recorded at [HD] 720/60p and two movie images at [HD] 1080/60i, you can combine only the two movie images recorded at [HD] 1080/60i, not the movie image at [HD] 720/60p.
- You can not combine protected images. You must first release the protect function to paste it. ➔page 99
- The two movie images are combined in the selected order and restored as one movie image.
- The original movie images will not be preserved.
- Photo images cannot be combined.
- The time lapse movie images cannot be combined.
- You can also access it by using the Q.MENU button.

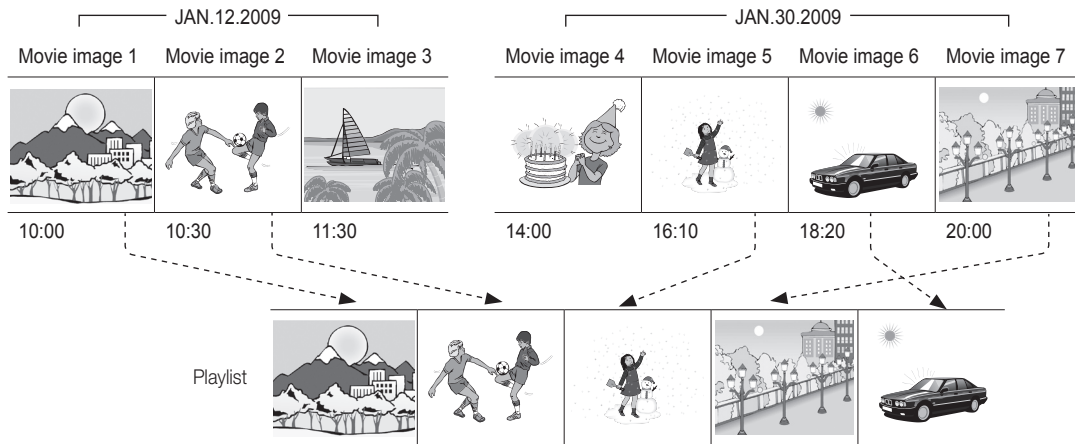
Press the Q.MENU button. → Touch “Edit.” → Touch “Combine.”
- A maximum of 2 movie images can be combined at a time.
- You can perform the Combine function when there is at least 9MB of memory space remaining on the built-in memory or memory card.
- Combine is not available if the total size of the two files to be combined exceeds 1.8GB.



PLAYLIST









What's a "Playlist?"

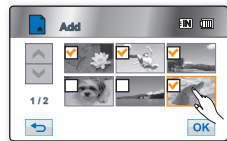
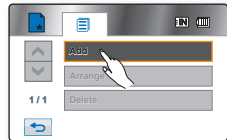
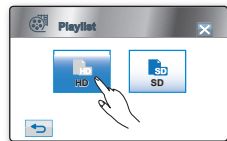
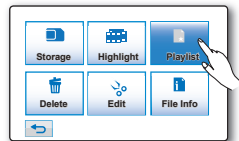
The playlist is created by gathering your favorite recorded movie images. Since the playlist is not created by copying data, it will consume little of the storage capacity. When creating or deleting a playlist, the original movie image will not be erased. In addition, adding or deleting movie images from a playlist does not affect the original movie images.



editing movie images

Creating the playlist

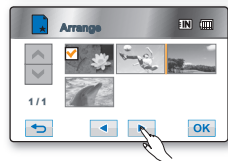
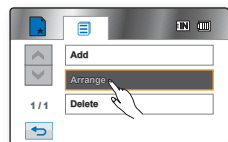
- This function works only in Play mode. ↪ page 20
 - You can create a playlist on this HD camcorder by gathering your favorites from the recorded movie images. Since the playlist is not created by copying data, you will consume little of the storage capacity.
1. Press the **Q.MENU** button.
 2. Touch **"Playlist"** → **"HD"** or **"SD"** (creating playlist according to movie resolution)
→ Menu () tab → **"Add."**
 3. Select and touch movie images to add to the playlist.
 - The () indicator is displayed on the selected movie images.
 - Touching the movie thumbnail image toggles between the movie thumbnail image being selected for creating a playlist (the () indicator appears on image) or not (the () indicator is removed from image).
 4. Touch the **OK** () tab.
 - The message **"Add selected files to Playlist?"** will appear.
 5. Touch **"Yes."**
 - When creation of a playlist is completed, the thumbnail view of the playlist will appear.
 - You can play a playlist in the same manner as you play a movie image. ↪ page 42
-  • Up to 9999 movie images can be included in the playlist.
- You cannot select two different resolution images for placement in the playlist.
 - You can add a movie image to the playlist in the same manner as above.
 - You can also access it by using the Menu () tab.
Touch the Menu () tab → **"Playlist."**



Arranging the order of movie images within a playlist

You can arrange movie images within a playlist by moving them to the desired positions.

1. Touch **"Playlist"** → **"HD"** or **"SD"** (arranging playlist according to movie resolution) → Menu (☰) tab → **"Arrange."**
2. Touch the movie image to be moved.
 - The (✓) indicator is displayed on the selected movie images.
 - Touching the movie thumbnail image toggles between the movie thumbnail image being selected for arranging within the playlist (the (✓) indicator appears on image) or not (the (✓) indicator is removed from image).
 - A bar will also appear next to the movie image.
3. Touch the previous (◀) or next (▶) tab to move the bar to the position of your choice, then touch the **OK** (OK) tab.
4. Touch **"Yes."**
 - The message **"Arrange the selected file in this order?"** will appear.
4. Touch **"Yes."**
 - The selected movie image will be moved to the new position.



Deleting movie images from a playlist

You can delete undesired movie images within the playlist.

1. Touch **"Playlist"** → **"HD"** or **"SD"** (deleting playlist according to movie resolution) → Menu (☰) tab → **"Delete."**
2. Touch the movie images to be deleted.
 - The (✖) indicator is displayed on the movie images selected for deletion.
 - Touching the movie thumbnail image toggles between the movie thumbnail image being selected for deleting from the playlist (the (✖) indicator appears on image) or not (the (✖) indicator is removed from image).
3. Touch the **OK** (OK) tab.
4. Touch **"Yes."**
 - The message **"Delete selected files from Playlist?"** will appear.
4. Touch **"Yes."**
 - The selected playlists will be deleted.

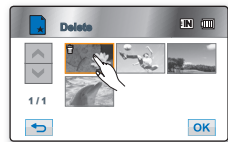
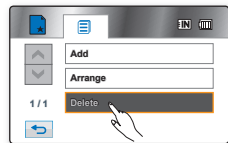

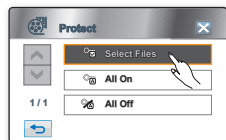
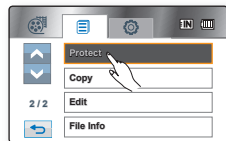


image management

This chapter describes information about movie or photo file management tools such as protection, deletion, and copy. Image management cannot be performed when the battery is low.

PROTECTION FROM ACCIDENTAL ERASURE

- This function works only in Play mode. ➡page 20
 - You can protect important images from accidental erasure.
 - If you execute formatting, all files including protected files will be erased. ➡page 82
1. Touch the HD Movie (📹HD) tab, SD Movie (📹SD) tab, or Photo (📷) tab.
 2. Touch the Menu (☰) tab → **“Protect.”**
 3. Touch the desired option tab on the screen (**“Select Files”**, **“All On”** or **“All Off”**).
 - **“Select Files”**: Protects individual images.
To protect individual images, touch the images in order to select them for protection. The (🔒) indicator is displayed on the selected movie images. Touching the thumbnail image toggles between the thumbnail image being selected for protection (the (🔒) indicator appears on image) or not (the (🔒) indicator is removed from image). Touch the **OK (OK)** tab.
 - **“All On”**: Protects all images.
To protect all images, simply touch **“All On.”**
 - **“All Off”**: Releases the protected images all at once.
 4. The message according to the selected option will appear. Touch **“Yes.”**
 - After completing, the selected images will be protected.
-  • It operates identically in the full image display.
- Protected images will show the (🔒) indicator when they are displayed.
 - If the write protection tab on the memory card is set to lock, you cannot set image protection. ➡page 30



DELETING IMAGES

- This function works only in Play mode. ↪ page 20
 - You can erase the images recorded on the storage media.
 - An image that has been deleted cannot be recovered.
1. Touch the HD Movie (📹HD) tab, SD Movie (📹SD) tab, or Photo (📷) tab.
 2. Touch the Menu (☰) tab → **"Delete."**
 3. Touch the desired option tab on the screen (**"Select Files"** or **"All Files"**).
 - **"Select Files"**: Deletes individual images.

To delete individual images, touch images in order to select them for deletion. The (🗑️) indicator is displayed on the selected images. Touching the thumbnail image toggles between the thumbnail image being selected for deletion (the (🗑️) indicator appears on image) or not (the (🗑️) indicator is removed from image). Touch the **OK** (OK) tab.
 - **"All Files"**: Deletes all images.

To delete all images, simply touch **"All Files."**
 4. The message according to the selected option will appear. Touch **"Yes."**
 - After completion, selected images will be deleted. (Accordingly, the deleted files also disappear in the playlist. ↪ page 97)
- 📷
- It operates identically in the full image display.
 - To protect important images from accidental deletion, activate the image protection. ↪ page 99
 - The protect (🔒) indicator will blink if you try to delete a image that was previously protected. ↪ page 99

You must release the protect function to delete the image.
 - If the write protection tab on the memory card is set to lock, you cannot delete. ↪ page 30
 - You can also format the storage media to delete all the images at once. Be aware that all files and data including protected files will be erased. ↪ page 82
 - You can also access it by using the **Q.MENU** button.

Press the **Q.MENU** button. → Touch **"Delete."**

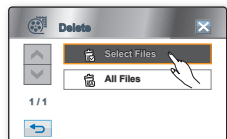
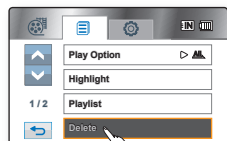


image management

COPYING IMAGES (HMX-H104BN/HMX-H105BN/HMX-H106SN only)

- This function works only in Play mode. ➔page 20
- You can copy images between the built-in memory and a memory card.
- Images are copied to the destination storage while leaving original images in the source storage. (It copies from the currently-used storage to another. For example, if the built-in memory is used, it copies to a memory card.)
- Make sure that the memory card has been inserted.

1. Touch the HD Movie (HD) tab, or SD Movie (SD) tab, Photo (Photo) tab.

2. Touch the Menu (Menu) tab → “Copy.”

3. Touch the desired option tab on the screen (“Select Files” or “All Files”).

- “Select Files”: Copy individual images.

Touch images you want to copy.

The (P) indicator is displayed on the selected images.

Touching the thumbnail image toggles between the thumbnail image being selected for copying (the (P) indicator appears on image) or not (the (P) indicator is removed from image). Touch the OK (OK) tab.

- “All Files”: Copy all images.

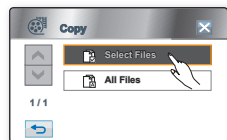
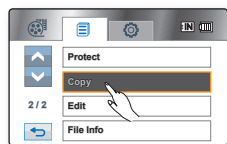
To copy all images, simply touch “All Files.”

4. The message according to the selected option will appear. Touch “Yes.”

- After completion, selected images will be copied.
- Touch “Cancel” to cancel during image copying.



- It operates identically in the full image display.
- If free space available on the storage is insufficient, copying may not be possible. Delete unnecessary images. ➔page 100
- When you copy a photo image which has Print Mark on it, the copied one will lose the Print Mark.
- Be sure to connect AC power adaptor when using copy function.



Remaining capacity of destination storage

printing photo images

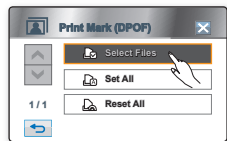
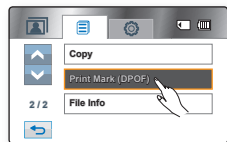
You can print photo images by inserting the DPOF setting card to a DPOF-compatible printer or connecting the HD camcorder to the PictBridge printer.

DPOF PRINT SETTING

- Print Mark (DPOF) can be set only on photo images stored in the memory card.
 - This function works only in Play mode. ➡page 20
 - This HD camcorder is compatible with DPOF (Digital Print Order Format).
- You can set which images to be printed and the number of prints with this HD camcorder.

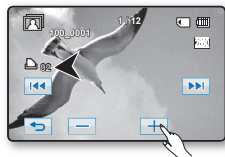
This feature is useful to print with a DPOF-compatible printer or when bringing storage media to a photo lab for printing.

1. Touch the Photo (📷) tab.
2. Touch the Menu (☰) tab → Settings (⚙️) tab → **“Storage Type”** → **“Card.”**
(HMX-H104BN/HMX-H105BN/HMX-H106SN only)
3. Touch the Menu (☰) tab → **“Print Mark (DPOF).”**
4. Touch the desired option tab on the screen (**“Select Files,”** **“Set All”** or **“Reset All”**).
 - **“Select Files”**: Print-marks individual images.
Touch images to select them for printing.
The (🖨️01) indicator is displayed on the selected images.
Touching the photo thumbnail image toggles between the photo thumbnail image being selected for printing (the (🖨️01) indicator appears on image) or not (the (🖨️01) indicator is removed from image).
Touch the **OK** (OK) tab.
 - **“Set All”**: Print-marks all images.
Simply touch **“Set All.”**
 - **“Reset All”**: Removes the print mark.
Simply touch **“Reset All.”**
5. The message according to the selected option will appear. Touch **“Yes.”**



Setting the number of copies to print

- You can set the number of prints in the single display view only.
- Select the photo image to print in the single display mode, and touch the Menu (☰) tab → **"Print Mark (DPOF)"** → decrease (←) or increase (→) tab (select the number of prints).
Up to 99 copies can be set to print of each image.



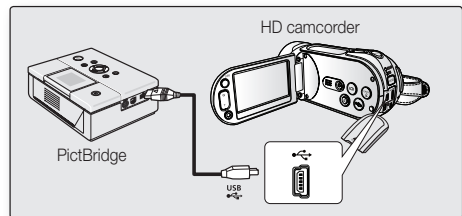
- It operates identically in the full image display (single image displayed on the screen).
- Print marked photo images will show the (DPOF) indicator when they are displayed.
- The **"Reset All"** and **"Set All"** options may take a long time depending on the number of stored images.

DIRECT PRINTING WITH A PICTBRIDGE PRINTER

- This function works only in Play mode. ↪page 20
- If your printer is compatible with PictBridge, photo images can be printed easily by connecting the camcorder with the USB cable directly to the printer. DPOF setting can also be used.
↪page 102

NOTICE: After selecting **"PictBridge"** in the menu, connect the USB cable.

1. Set the **"USB Connect"** to **"PictBridge."** ↪page 89
2. Connect your HD camcorder to the printer using the provided USB cable.
3. Turn your printer power on.
 - The thumbnail index view of the photo image will appear.
4. Touch a photo image to print, then touch the Print (🖨️) tab.
 - To search for a photo image, touch the previous image (⏮️) or next image (⏭️) tab.
 - The message **"Print ?"** will appear.
5. Touch **"Yes."**
 - The selected photo image will be printed.
 - After the connection, the easy printing menu will display on the LCD screen. To display the PictBridge menu, touch the Menu (☰) tab. For more information about the PictBridge menu, refer to page 104.



printing photo images

Setting the number of copies to print

Touch the decrease ([-]) or increase ([+]) tab to select the number of prints.

- If the image moves to the previous or next, the number of copies is reset.

To cancel print setting

Touch the Return ([↶]) tab on the screen.

To stop printing after printing starts

The confirmation screen appears while printing.

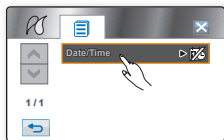
Touch **"Cancel"** on the screen.



PictBridge menu

Setting the date/time imprint option

Touch the Menu ([≡]) tab → **"Date/Time"** → **"Off," "Date," "Time,"** or **"Date & Time"** → Return ([↶]) tab.

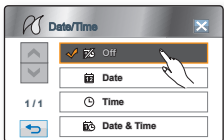


To print using the DPOF setting

If the printer is compatible with DPOF, you can use the DPOF setting. ➔page 102



- If the printer is not recognized, or to print again after direct printing with a PictBridge printer, remove the USB cable, select **"PictBridge"** in the menu again, and then reconnect the cable.
- The date/time imprint option may not be supported by all printers. Check with your printer manufacturer.
- The **"Date/Time"** menu cannot be setup if the printer does not support this option.
- PictBridge™ is a registered trademark of CIPA (Camera & Imaging Products Association), an image transfer standard developed by Canon, Fuji, HP, Olympus, Seiko Epson, and Sony.
- Use the USB cable provided with the HD camcorder.
- Use the AC power adaptor for your HD camcorder during PictBridge direct printing. Turning your HD camcorder off during printing might damage data on the storage media.
- Movie images are not available for printing.
- You can set various printing options depending on the printer. Please refer to the user manual of the printer for details.
- Do not remove USB cable or memory card during printing.
- You may not print photo images recorded on other devices.



Using a computer

This chapter explains how to connect the camcorder to a computer using the USB cable.
Read this chapter carefully and be free from your burden of handling two devices at the same time.

CHECKING YOUR COMPUTER TYPE

To view your recordings on a computer, you need to check your computer type first.
Editing software is stored in this camcorder. Connecting the camcorder to a Windows computer using USB cable runs the editing software application. The application enables playback, editing and sharing of the recordings.

If you are using a Windows PC

Connect your camcorder to the computer using the USB cable.

- The built-in editing software, Intelli-studio runs automatically once the camcorder is connected to a Windows computer.
(When you specify **"PC Software: On"**). ➔ page 88



Play back or edit your recordings on the computer using the built-in Intelli-studio application. ➔ page 109



You can also upload your recordings to YouTube or other web sites using the Intelli-studio. ➔ page 109



Using a computer

WHAT YOU CAN DO WITH A WINDOWS COMPUTER

You can enjoy the following operations by connecting your camcorder to your Windows computer via the USB cable.

Main Functions

- By using the built-in 'Intelli-studio' editing software on your camcorder, you can enjoy the following operations.
 - Playing back recorded videos or photos. ➡page 109
 - Editing recorded videos or photos. ➡page 109
 - Uploading recorded videos and photos to YouTube. ➡page 109
- You can transfer or copy the files (videos and photos) saved on the storage media into your computer. (the Mass Storage function) ➡page 112

System Requirements

The following requirements must be satisfied to use the built-in editing software (Intelli-studio):

Item	Requirement
OS	Microsoft Windows Vista or XP
CPU	Intel® Core 2 Duo® 1.66 GHz or higher recommended, AMD Athlon™ X2 Dual-Core 1.6 GHz or higher recommended
RAM	512 MB (1 GB and above recommended)
Video Card	nVIDIA Geforce 7600GT or higher, Ati X1600 series or higher
Display	1024 x 768, 16-bit color or higher (1280 x 1024, 32-bit color recommended)
USB	USB 2.0
DirectX	DirectX 9.0c or higher



- System requirements mentioned above are recommendations. Even on a system that satisfies the requirements, operation is not ensured depending on the system.
- On a slower computer than recommended, video playback may skip frames or operate unexpectedly.
- When the version of DirectX on your computer is lower than 9.0c, install the program with the version of 9.0c or higher.

USING THE Intelli-studio PROGRAM

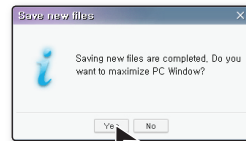
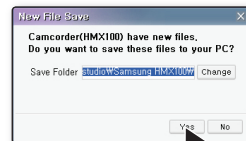
Using the Intelli-studio program built-in your camcorder, you can transfer video/photo files onto your PC and edit them on your computer. Intelli-studio offers the most convenient way for you to manage video/photo files by using the simple the USB cable connection between the camcorder and your PC.

Step 1. Connecting the USB cable

1. Set “USB Connect” to “Mass Storage.” ↪ page 89
2. Set “PC Software” to “On.” ↪ page 88
3. Connect the HD camcorder to the PC with the USB cable.
 - A new file saving screen appears with the Intelli-studio main window.
 - According to your computer type, the corresponding removable disk window appears. If you do not want to use it, select “Cancel.”
4. Click “Yes,” the uploading procedure will be complete and the following pop up window appears. Click “Yes” to confirm.
 - If you do not want to save a new file, select “No.”



- Use the provided USB cable. (Supplied by Samsung)
- Don't apply excessive force when inserting or extracting the USB cable into/from a USB jack.
- Insert a USB after checking the direction of its insertion is correct.
- We recommend using the AC power adaptor as the power supply instead of the battery pack.
- When the USB cable is connected, turning the camcorder on or off may cause the PC to malfunction.
- If you disconnect the USB cable from the PC or the camcorder while transferring, the data transmission will stop and the data may be damaged.
- If you connect the USB cable to a PC via a USB HUB or simultaneously connect the USB cable along with other USB devices, the camcorder may not work properly. If this occurs, remove all USB devices from the PC and reconnect the camcorder.
- According to your computer type, the Intelli-studio program may not automatically run. In this case, open the desired CD-ROM drive that has the Intelli-studio program in My Computer and run iStudio.exe.
- When a USB cable is connected, if you have EmoDio (Samsung's MP3 player software) installed on your computer, the EmoDio software may load first.



To disconnect the USB cable

After completing the data transfer, make sure to disconnect the cable in the following ways:

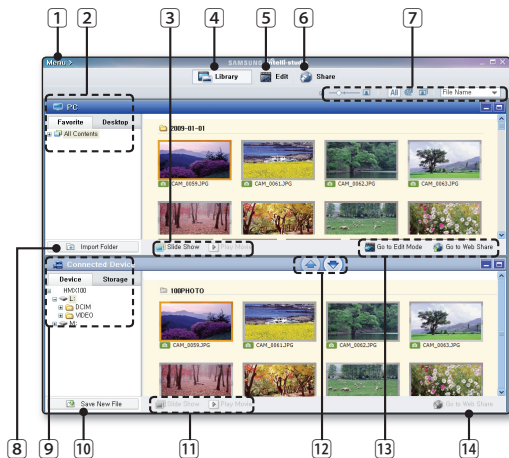
1. Click the “Safely Remove Hardware icon” icon on the taskbar.
2. Select “USB Mass Storage Device,” and then click “Stop.”
3. If the “Stop a Hardware device” window appears, click “OK.”
4. Disconnect the USB cable from the camcorder and PC.



Using a computer

Step 2. About the Intelli-studio main window

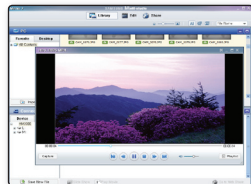
- When the Intelli-studio starts up, thumbnails of videos and photos are display in the main window.



- 1 Menu items
- 2 Selects the Desktop or Favorite on the PC.
- 3 Slide show of the photo files from the PC.
Playback of the video files from the PC.
- 4 Switches to the Library of the PC and connected camcorder.
- 5 Switches to Edit mode.
- 6 Switches to Share mode.
- 7 Changes the size of thumbnails.
Displays all files (videos and photos).
Displays video files only.
Displays photo files only.
Sorts the files.
- 8 Imports folders from your PC.
- 9 Selects the connected camcorder or storage.
- 10 Saves new files to your PC.
- 11 Slide show of the photo files from the connected camcorder.
Playback of the video files from the connected camcorder.
- 12 Saves the selected file to your PC.
Saves the selected file to the connected camcorder.
- 13 Moves the file selected in the PC to the Edit mode.
Moves the file(s) selected in the PC to the Share mode.
- 14 Moves the file(s) selected in the connected camcorder to the Share mode.

Step 3. Playing back videos (or photos)

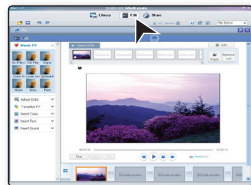
- You can play back recordings conveniently using the Intelli-studio application.
1. Run the Intelli-studio program. ➔ page 107
 2. Click the desired folder to display your recordings.
 - Video (or photo) thumbnails appear on the screen, according to the selected source.
 3. Select the video that you want to play, and then click the **“Player”** icon on the bottom side of the screen.
 - Playback starts and playback controls appear.
 - You can also double-click the video (or photo) thumbnail to start playback.



Step 4. Editing videos (or photos)

With Intelli-studio, you can edit the videos or photos in various ways.

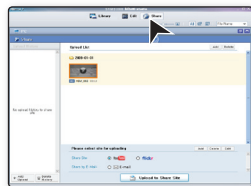
- Select the video (or photo) that you want to edit, and then click the **“EDIT”** icon.



Step 5. Sharing video/photo images online

Share your contents with the world, by uploading photos, slideshows and videos directly to a Web site with one click.

1. Click the **“SHARE”** on the browser.
2. Click the **“Add”** and move the video or photo (drag and drop) to the sharing window for upload.
 - The selected file appears on the sharing window.
3. Click the website you would like to upload files to.
 - You can choose the “YouTube®,” “Flickr®,” or the specified website you want to set for your uploading management.
4. Click the **“Upload to Share Site”** to start uploading.
 - A pop up window appears asking your ID and the password.
5. Enter your web log-in information to access.
 - Access to the web site contents can be limited depending on your web access environment.



For more information about Intelli-studio use, see the Help Guide by clicking **“Menu”** → **“Help.”**

Using a computer

Other functions with the Intelli-studio

Importing and viewing videos/photos from the camcorder to your PC

1. Launch the Intelli-studio program by double-clicking the program icon on the desktop screen or connect the camcorder to your PC.
2. Click "Import Folder" to import the video or photo files from your PC.
3. The selected video or photo files are imported from your PC, and you can see the files location on the Intelli-studio browser.
4. You can double-click on the file you would like to start playback.



The following is the file format supportable in Intelli-studio:

- Video formats: MP4 (Video: H.264, Audio: AAC), WMV (WMV 7/8/9)
- Photo formats: JPG, GIF, BMP, PNG, TIFF

Exporting the videos to your camcorder

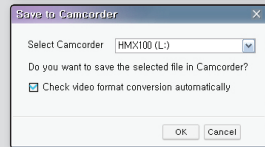
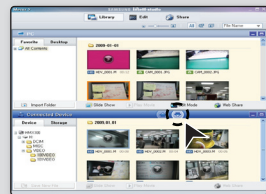
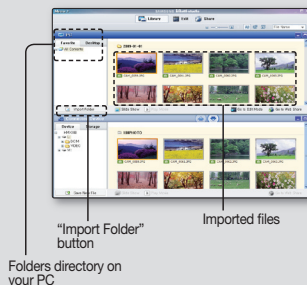
1. Select the desired files to export.
2. Click "Save to Camcorder" (📁) icon to export files to your camcorder.
3. The following pop up window appears.
4. Click "OK" to export files.
 - The files are saved to your camcorder.



While transferring any file, do not disconnect the USB cable.
It may cause damage to the camcorder or computer.

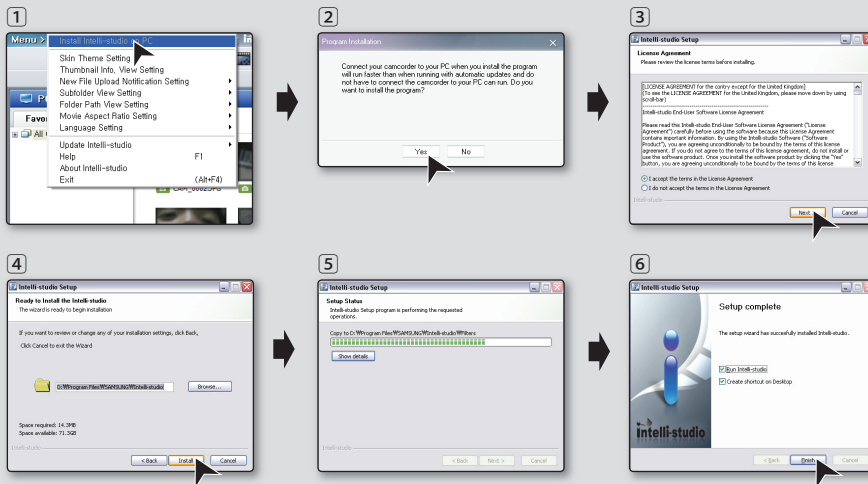


- When storing a video through Intelli-studio, it is automatically stored into an MP4 file that can be played back. However, the only video file format supportable in Intelli-studio can be converted and stored in the camcorder.
- According to the resolution and type of the video, the storing time may differ.
- Photos cannot be stored on the camcorder through Intelli-studio.



Installing Intelli-studio application on the Windows computer

- When the Intelli-studio application is installed on a Windows computer, it will run faster after connecting the camcorder to your computer. Moreover, the application can be updated automatically and run directly in the Windows computer.
- The Intelli-studio application can be installed on a Windows computer as follows:
Click the **"Menu"** → **"Install Intelli-studio on PC"** on the Intelli-studio screen.



USING AS A REMOVABLE STORAGE DEVICE

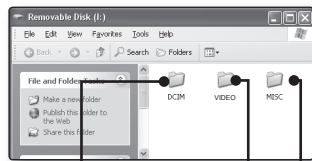
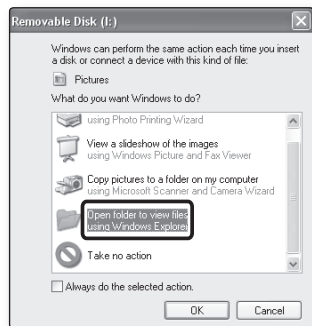
You can transfer or copy recorded data to a Windows computer by connecting the USB cable to the camcorder.

Step 1. Viewing the contents of storage media

1. Set the “USB Connect” to “Mass Storage.” ➡page 89
2. Set “PC Software” to “Off.” ➡page 88
3. Check out the storage media.
(If you want to record on a memory card, insert the memory card.)
(HMX-H104BN/HMX-H105BN/HMX-H106SN only) ➡page 27
4. Connect the HD camcorder to the PC with the USB cable. ➡page 107
 - The “Removable Disk” or “Samsung” window appears on the PC’s screen after a moment.
 - The removable disk appears when connecting a USB.
 - Select “Open folders to view files using Windows Explorer” and click “OK.”
5. The folders in the storage media appear.
 - Different file types are stored in different folders.



- If the “Removable Disk” window does not appear, confirm the connection (page 107) or perform steps 1 and 2 again.
- When the removable disk does not appear automatically, open the removable disk folder of My Computer.
- If the connected camcorder’s disk drive does not open or the context menu that appears when right clicking your Mouse (open or browse) appears broken, your computer is suspected to be infected by Autorun virus. Install the vaccine or update to the latest version.



Using a computer

Structure of folders and files on the storage media

- The folder and file structure for storage media is as follows:
- Don't arbitrarily change or remove the folder or file name. It may not be playable.
- The file naming follows DCF (Design rule for Camera File System).

Video file (H.264) ①

- The HD-quality (1920x1080 60i or 1280x720 60p) movie images have HDV_####.MP4 format.
- The SD-quality movie images have SDV_####.MP4 format.
- The HD and SD quality movie images will be named as HDE_####.MP4 and SDE_####.MP4 respectively when you edit movie images using the PC software.
- The file number automatically increases when a new movie image file is created.
- Up to 9999 files are created in 999 folders.
- A new folder is created when more than 999~1000 files are created.

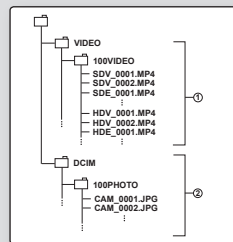


Photo file ②

- As in movie image files, the file number automatically increases when a new image file is created.
- The maximum file number allowed is the same as in movie image files.
- A new folder stores files from CAM_0001.JPG.
- The folder name increases in the order of 100PHOTO → 101PHOTO etc.
- Up to 9999 files are created in 999 folders. A new folder is created when more than 999~1000 files are created.

Image format

Movie image

- Movie images are compressed in H.264 format. The file extension is **“.MP4.”**
- The image size is 1920X1080(HD), 1280x720(HD), or 720x480(SD). ➡ page 60

Photo image

- Photo images are compressed in JPEG (Joint Photographic Experts Group) format. The file extension is **“.JPG.”**
- The image size is 2880x1620 or 1920x1080. ➡ page 61

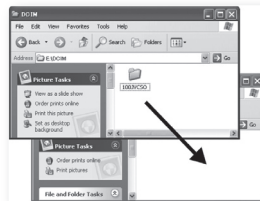
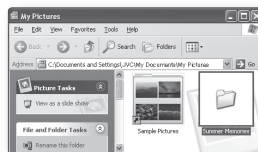


- When the 9999th file is created in the 999th folder (i.e. HDV_9999.MP4 is created in the 999VIDEO folder), a new folder cannot be created anymore. Set **“File No.”** to **“Reset”** at this time.
- You may modify the name of a file/folder stored in the storage media using a PC. This HD camcorder may not recognize modified files.

Step 2. Transferring files from the camcorder to your Windows computer

You can copy the movie and photo images to your PC and play them back.

1. Execute the procedure in “Viewing the contents of storage media.” ➡ page 112
 - The folders in the storage media appear.
2. Create a new folder, enter the folder name, then doubleclick it.
3. Select the folder to copy, then drag and drop it into the destination folder.
 - The folder is copied from the storage media (memory card (all models) or built-in memory) to the PC.



- When using a removable disk, all types of files in the computer can be transferred to your camcorder. Note that only the video and photo that have been recorded by your camcorder can be played back. If the files are arbitrarily modified or edited, they cannot be played back.

maintenance & additional information

MAINTENANCE

Your HD camcorder is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you fulfill any warranty obligations and allow you to enjoy this product for many years.

- **For safekeeping of the HD camcorder, turn it off.**
 - Remove the battery pack and AC power adaptor. ➔ pages 14,18
 - Remove the memory card. ➔ page 28

Cautions when storing

- **Do not leave the HD camcorder in a place where the temperature is very high for a long period of time:**

The temperature inside a closed vehicle or trunk can become very high in hot weather. If you leave the HD camcorder in such a place, it could malfunction or the case could be damaged. Do not expose the HD camcorder to direct sunlight or place it near a heater.
- **Do not store the HD camcorder in a place where the humidity is high or in a dusty place:**

Dust entering the HD camcorder could cause a malfunction. If humidity is high, the lens could become moldy, and the HD camcorder could become inoperative. It is recommended that you put the HD camcorder in a box together with a small silica bag when storing it in a closet, etc.
- **Do not store the HD camcorder in a place subject to strong magnetism or intense vibration:**

This could cause malfunctions.
- **Detach the battery pack from the HD camcorder and store it in a cool place:**

Leaving the battery pack attached or storing it at high temperature could shorten its life.

Cleaning the HD camcorder

Before cleaning, turn off the HD camcorder and remove the battery pack and AC power adaptor.

- **To clean the exterior**
 - Wipe gently with a soft dry cloth. Do not apply excessive force when cleaning, gently rub the surface.
 - Do not use benzene or thinner to clean the camcorder. The coating of exterior could peel off or the case could deteriorate.
- **To clean the LCD screen**

Wipe gently with a soft dry cloth. Be careful not to damage the monitor.
- **To clean the lens**

Use an optional air blower to blow out dirt and other small objects. Do not wipe the lens with cloth or your fingers. If necessary, wipe gently with lens cleaning paper.

 - Mold may form if the lens is left dirty.
 - If the lens looks dim, turn off the HD camcorder and leave it for about 1 hour.

ADDITIONAL INFORMATION

Storage media

- **Be sure to follow the guidelines below to prevent corruption or damage to your recorded data.**
 - Do not bend or drop the storage media, or subject it to strong pressure, jolts or vibrations.
 - Do not splash the storage media with water.
 - Do not use, replace, or store the storage media in locations that are exposed to strong static electricity or electrical noise.
 - Do not turn off the camcorder power or remove the battery or AC power adaptor during recording, playback, or when otherwise accessing the storage media.
 - Do not bring the storage media near objects that have a strong magnetic field or that emit strong electromagnetic waves.
 - Do not store the storage media in locations with high temperature or high humidity.
 - Do not touch the metal parts.
- **Copy the recorded files to your PC. Samsung shall not be responsible for any lost data. (It is recommended that you copy the data from your PC to other media for storage.)**
- **A malfunction may cause the storage media to fail to operate properly. Samsung will not provide any compensation for any lost contents.**
- **Refer to pages 27-31 for details.**

LCD screen

- **To prevent damage to the LCD screen**
 - Do not push it too hard or knock it on anything.
 - Do not place the camcorder with the LCD screen on the bottom.
- **To prolong service life, avoid rubbing it with a coarse cloth.**
- **Be aware of the following phenomena for LCD screen use. They are not malfunctions.**
 - While using the camcorder, the surface around the LCD screen may heat up.
 - If you leave power on for a long time, the surface around the LCD screen becomes hot.

maintenance & additional information

Battery packs

The supplied battery pack is a lithium-ion battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

- **To avoid hazards**
 - Do not burn.
 - Do not short-circuit the terminals. When transporting, carry the battery in a plastic bag.
 - Do not modify or disassemble.
 - Do not expose the battery to temperatures exceeding 140°F (60°C), as this may cause the battery to overheat, explode or catch fire.
- **To prevent damage and prolong service life**
 - Do not subject to unnecessary shock.
 - Charge in an environment where temperatures are within the tolerances shown below.
This is a chemical reaction type battery - cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
 - Store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
 - Fully charge and then fully discharge the battery every 6 months when storing the battery pack over a long time period.
 - Remove from your camcorder when not in use, as these components may use current even when switched off.



- We recommended only using genuine **Samsung** batteries in this camcorder. Using generic non-**Samsung** batteries can cause damage to the internal charging circuitry.
- It is normal for the battery pack to be warm after charging, or after use.
- **Temperature range specifications**
Charging: 50°F to 95°F (10°C to 35°C) / Operation: 32°F to 104°F (0°C to 40°C) / Storage: -4°F to 140°F (-20°C to 60°C)
- The lower the temperature, the longer recharging takes.
- Refer to pages 17-18 for details.

On charging the built-in rechargeable battery

Your camcorder has a built-in rechargeable battery to retain the date, time, and other settings even when the power switch is set to off. The built-in rechargeable battery is always charged while your camcorder is connected to the wall outlet via the AC power adaptor or while the battery pack is attached. The rechargeable battery will be fully discharged in about 6 months if you do not use your camcorder at all. Use your camcorder after charging the built-in rechargeable battery.

However, even if the built-in rechargeable battery is not charged, the camcorder operation will not be affected as long as you are not recording the date.

USING YOUR HD CAMCORDER ABROAD

- **Each country or region has its own electric and color systems.**
- **Before using your HD camcorder abroad, check the following items.**
- **Power sources**

The provided AC adaptor features automatic voltage selection in the AC range from 100 V to 240 V.

You can use your camcorder in any countries/regions using the AC power adaptor supplied with your camcorder within the AC 100 V to 240 V, 50/60 Hz range.

Use a commercially available AC plug adaptor, if necessary, depending on the design of the wall outlet.

- **Viewing images recorded with HD (high definition) image resolution**

In countries/regions where 1080/60i is supported, you can view the images with the same HD (high definition) image resolution as that of the recorded images. You need an NTSC-system-based and 1080/60i compatible TV (or monitor) with an HDMI or Component cable connected.

- **Viewing images recorded with SD (standard definition) image resolution**

To view images recorded with SD (standard definition) image resolution you need an NTSC-system-based TV with Audio/Video, Component or HDMI input jacks, and an HDMI cable, Component/AV cable connected.

- **On TV color systems**

Your camcorder is an NTSC-system-based camcorder.

If you want to view your recordings on a TV or to copy it to an external device, it must be an NTSC-system-based TV or an external device and have the appropriate connection jacks. Otherwise, you may need to use a separate video format transcoder (NTSC-PAL format converter).

NTSC-compatible countries/regions

Bahamas, Canada, Central America, Japan, Korea, Mexico, Philippines, Taiwan, United States of America, etc.

PAL-compatible countries/regions

Australia, Austria, Belgium, Bulgaria, China, CIS, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Great Britain, Holland, Hong Kong, Hungary, India, Iran, Iraq, Kuwait, Libya, Malaysia, Mauritius, Norway, Romania, Saudi Arabia, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Syria, Thailand, Tunisia, etc.



You can make recordings with your HD camcorder and view pictures on the LCD screen from anywhere in the world.

troubleshooting

TROUBLESHOOTING





Before contacting a Samsung authorized service center, perform the following simple checks. They may save you the time and expense of an unnecessary call.





Warning indicators and messages

Battery pack


Message	Icon	Informs that...	Action
Low Battery	-	The battery pack is almost discharged.	<ul style="list-style-type: none">Replace with a charged battery or connect the AC power adaptor.

Storage media

Message	Icon	Informs that...	Action
Memory Full		There is not enough space to record on the built-in memory.	<ul style="list-style-type: none">Delete unnecessary files on the built-in memory.Back-up files to your PC or another storage media and delete files.Use a memory card.
Insert Card		There is no memory card inserted in the memory card slot.	<ul style="list-style-type: none">Insert a memory card.Use the built-in memory.
Card Full		There is not enough space to record on the memory card.	<ul style="list-style-type: none">Delete unnecessary files on the memory card.Back-up files to your PC or another storage media and delete files.Use the built-in memory.Change another memory card which has enough free space.
Card Locked		The write protection tab on an SD or SDHC card has been set to lock.	<ul style="list-style-type: none">Release write protection tab.

Message	Icon	Informs that...	Action
Unknown Error	-	The memory card cannot be recognized in cases of Card Error, Not Formatted or Not Supported Card.	<ul style="list-style-type: none"> Insert the proper memory card that has a supported file format.
Card Error		The memory card has some problem and can not be recognized.	<ul style="list-style-type: none"> Change memory card to another one.
Not Formatted		The memory card is not formatted.	<ul style="list-style-type: none"> Format the memory card using menu item.
Not Supported Format		The memory card may have been formatted by another device and may still have existing images on it.	<ul style="list-style-type: none"> The image format is not supported. Check the supported file format. ➡ page 82 Format the memory card using menu item.
Not Supported Card		The memory card is not supported in this camcorder.	<ul style="list-style-type: none"> Change the memory card with the one recommended.
Low speed card. Please record a lower Resolution.	-	The memory card does not have enough performance to record.	<ul style="list-style-type: none"> Record movie at a lower resolution. Change memory card to faster one. ➡ page 28

Recording

Message	Icon	Informs that...	Action
Write Error	-	Some problem occurred while writing data to storage media.	<ul style="list-style-type: none"> Format storage media using menus after backing-up important files to your PC or another storage media.
Release the EASY.Q	-	You can not operate some functions manually when EASY Q is activated.	<ul style="list-style-type: none"> Release EASY Q function.
Recovering Data...		The file was not created normally.	<ul style="list-style-type: none"> Wait until data recovery is finished. Never turn off the power and eject memory card during recording.
Activate remote control.		Remote function was set to off.	<ul style="list-style-type: none"> Set "Remote" function to "On."
Number of video files is full. Cannot record video.	-	Folder and files have reached capacity and you can not record.	<ul style="list-style-type: none"> Set "File No." to "Reset" and format the storage media.
Number of photo files is full. Cannot take a photo.	-	Folder and files have reached capacity and you can not take a picture.	<ul style="list-style-type: none"> Set "File No." to "Reset" and format the storage media.

troubleshooting

Playback

Message	Icon	Informs that...	Action
Not enough free space in Memory.	-	File editing functions can not be performed because there is not enough free space in the built-in memory.	<ul style="list-style-type: none">• Delete unnecessary files on the storage media.• Back-up files to PC or another storage media and delete files.
Not enough free space in Card.	-	File editing functions can not be performed because there is not enough free space in the memory card.	<ul style="list-style-type: none">• Delete unnecessary files on the storage media.• Back-up files to PC or another storage media and delete files.
Read Error	-	Some problems occurred when reading data from storage media.	<ul style="list-style-type: none">• Format storage media using menus after backing up important files to PC or another storage device.

USB

Message	Icon	Informs that...	Action
Fail Printer Connecting	-	A problem occurred when connecting the camcorder via USB to a printer.	<ul style="list-style-type: none">• Check the USB cable.• Try the connecting procedure again.• Switch "USB Connect" function to "Mass Storage."
Fail USB Connecting	-	A problem occurred when connecting the camcorder via USB to a PC.	<ul style="list-style-type: none">• Check the USB cable.• Try the connecting procedure again.• Switch "USB Connect" function to "PictBridge."
Ink Error	-	There is a problem with the ink cartridge.	<ul style="list-style-type: none">• Check the ink cartridge.• Put a new ink cartridge in the printer.
Paper Error	-	There is a problem with the paper.	<ul style="list-style-type: none">• Check the paper in the printer. If there is no paper, insert the paper.

Message	Icon	Informs that...	Action
File Error	-	There is a problem with the file.	<ul style="list-style-type: none"> Your HD camcorder does not support this file format. Try another file recorded on your HD camcorder.
Printer Error	-	There is a problem with the printer.	<ul style="list-style-type: none"> Turn the printer's power off and on. Contact the printer manufacturer's service center.
Print Error	-	A problem occurred during printing.	<ul style="list-style-type: none"> Do not remove power source or eject memory card during printing.



CAUTION

When there is dew condensation, put the camcorder aside for a while before using

- What is dew condensation?

Dew condensation happens when a HD camcorder is moved to a place where there is a significant temperature difference from the previous place. The Dew condenses on the external or internal lenses of the HD camcorder, and on the reflection lens. When this happens, it may cause a malfunction or damage to the HD camcorder when using the device with the power on while there is dew condensation.

- What can I do?

Turn the power off and detach the battery pack, and leave it in a dry area for 1~2 hours before using it.

- When does the dew condensation occur?

When the device is relocated to a place with a higher temperature than the previous location, or when using it in a hot area suddenly, it will cause condensation.

- When recording outside in cold weather during the winter and then using it in indoors.
- When recording outside in hot weather after being indoors or inside a car where the A/C was running.

Note before sending your camcorder for repair.

- If these instructions do not solve your problem, contact 1-800-SAMSUNG for your nearest Samsung authorized service center.
- Depending on the problem, the built-in memory may need to be initialized or replaced and the data will be deleted. Be sure to back up the data on your PC before sending your camcorder to repair. Samsung cannot guarantee any loss of your data.

troubleshooting

✱ If these instructions do not solve your problem, contact your nearest Samsung authorized service center.

Symptoms and solutions

Power

Symptom	Explanation/Solution
The HD camcorder does not turn on.	<ul style="list-style-type: none">• The battery pack may not be installed on your HD camcorder. Insert a battery pack to the HD camcorder.• The inserted battery pack may be discharged. Charge the battery pack or replace it with a charged one.• If you use the AC power adaptor, make sure it is properly connected to a wall outlet.
The power turns off automatically.	<ul style="list-style-type: none">• Is "Auto Power Off" set to "5 Min"? If no button is pressed for about 5 minutes, the HD camcorder is automatically turned off ("Auto Power Off"). To disable this option, change the setting of "Auto Power Off" to "Off." ➔ page 87• The battery pack is almost exhausted. Charge the battery pack or replace it with a charged one.
Power cannot be turned off.	<ul style="list-style-type: none">• Remove the battery pack or unplug AC power adaptor, and connect the power supply to the camcorder again before turning it on.
The battery pack is quickly discharged.	<ul style="list-style-type: none">• The temperature is too low.• The battery pack is not fully charged. Charge the battery pack again.• The battery pack reached its lifespan and cannot be recharged. Use another battery pack.

Displays

Symptom	Explanation/Solution
The TV screen or LCD display has distorted images.	<ul style="list-style-type: none">It can occur when recording or viewing a 16:9-ratio image on a 4:3-ratio TV, or vice versa. For more details, see the display specification. → page 51
Unknown image appears on the LCD screen.	<ul style="list-style-type: none">The HD camcorder is in the demo mode. If you do not want to see the demo image, change the setting "Demo" to "Off." → page 92
Unknown indicator appears on the screen.	<ul style="list-style-type: none">A warning indicator or message appears on the screen. → pages 119-122
The afterimage remains on the LCD screen.	<ul style="list-style-type: none">This occurs if you disconnect the AC power adaptor or remove the battery pack before turning the power off.
The image on the LCD screen looks dark.	<ul style="list-style-type: none">Ambient light too bright. Adjust the brightness and angle of LCD.

Recording

Symptom	Explanation/Solution
Pressing the Recording start/stop button does not start recording.	<ul style="list-style-type: none">Press the MODE button to set Record mode. → page 20There is not enough free space to record on the storage media.Check if memory card is not inserted or write-protect tab is set to lock.
The actual recording time is less than the estimated recording time.	<ul style="list-style-type: none">The estimated recording time may vary depending on content and features used.Recording a fast-moving subject increases the bit rate and consequently the amount of storage space required for the recording, which can lead to a shorter available recording time.
The recording stops automatically.	<ul style="list-style-type: none">There is no more free space for recording on the storage media. Back up important files on your PC and format the storage media or delete the unnecessary files.If you make recordings or delete files frequently, the performance of the storage media will be deteriorated. In this case, format the storage media again.If you use the memory card with low writing speed, the HD camcorder automatically stops recording the movie images and the corresponding message appears on the LCD screen.

troubleshooting

Symptom	Explanation/Solution
When recording a subject illuminated by bright light, a vertical line appears.	<ul style="list-style-type: none">This is not a malfunction.
When the screen is exposed to direct sunlight during recording, the screen becomes red or black for an instant.	<ul style="list-style-type: none">This is not a malfunction.
During recording, the date/time does not display.	<ul style="list-style-type: none">"Date/Time Display" is set to "Off." Set the "Date/Time Display" to On. ↳page 85
You cannot record a photo image.	<ul style="list-style-type: none">Set your HD camcorder to Record mode. ↳page 20Release the lock on the write-protection tab of the memory card if any.The storage media is full. Use a new memory card or format the storage media. ↳page 82Or remove unnecessary images. ↳page 100
The shutter sound is not heard when you record a photo image.	<ul style="list-style-type: none">Set "Shutter Sound" to "On."
The beep sound is not heard.	<ul style="list-style-type: none">Set "Beep Sound" to "On."Beep sound is temporally off while recording movies.
There is a time difference between the point where you press Recording start/stop button and the point where the recorded movie starts/stops.	<ul style="list-style-type: none">On your camcorder, there may be a slight time delay between the point when you press Recording start/stop button and the actual point where the recorded movie starts/stops. This is not an error.

Storage Media

Symptom	Explanation/Solution
Memory card functions are not operable.	<ul style="list-style-type: none"> Insert a memory card into your camcorder properly. ➡page 28 If you use a memory card formatted on a computer, format it again directly on your camcorder. ➡page 82
Image cannot be deleted.	<ul style="list-style-type: none"> Release the lock on the write-protect tab of the memory card, if any. ➡page 30 You cannot move or delete the protected images. Release the protection of the image on the device. ➡page 99
You cannot format the memory card.	<ul style="list-style-type: none"> Release the lock on the write-protect tab of the memory card, if any. ➡page 30 The memory card is not supported on your camcorder or the card has some problems.
The data file name is not indicated correctly.	<ul style="list-style-type: none"> The file may be corrupted. The file format is not supported by your HD camcorder. Only the file name is displayed if the directory structure complies with the international standard.

Adjusting the image during recording

Symptom	Explanation/Solution
Focus does not adjust automatically.	<ul style="list-style-type: none"> Set "Focus" to "Auto." ➡page 69 The recording conditions are not suitable for auto focus. Adjust the focus manually. ➡page 69 The lens is dusty on the surface. Clear the lens and check the focus. Recording is being made in a dark location. Use a light to brighten the area.
The image appears too bright or flickering, or changes in color.	<ul style="list-style-type: none"> This may occur when you make a recording under a fluorescent sodium or mercury lamp. Cancel "iSCENE" to avoid or minimize this phenomenon. ➡page 59
Image's color balance is not natural.	<ul style="list-style-type: none"> White balance adjustment is required. Adjust to the proper "White Balance." ➡page 62
The subject may appear bent when passing through the frame quickly.	<ul style="list-style-type: none"> This is called the focal plane phenomenon. This is not a malfunction. Because of the way the image device (CMOS sensor) reads out video signals, the subject passing by the frame rapidly may appear to bend, depending on the recording condition.

troubleshooting

Playback on your HD camcorder

Symptom	Explanation/Solution
Playback (Play/Pause) function does not work.	<ul style="list-style-type: none">Image files recorded using another device may not be played on your HD camcorder.Check out the memory card compatibility. ➡ page 30
Photo images stored on a storage media are not displayed in the actual size.	<ul style="list-style-type: none">Photo images recorded on other device may not appear in the actual size. This is not an error.
Playback is interrupted unexpectedly.	<ul style="list-style-type: none">Check if the AC power adaptor or battery back is properly connected and secure.

Playback on other devices (TV, etc)

Symptom	Explanation/Solution
You cannot view the image or hear the sound from the connected device.	<ul style="list-style-type: none">Connect the audio of the Component/AV to your camcorder or connected device (TV, HD recorder, etc). (Red color- right, White color- left)The connection cable (HDMI, Component/AV cable, etc) is not connected properly. Make sure that the connection cable is connected to the proper jack. ➡ pages 48-50This HD camcorder provides the two-in-one component/AV cable that fits the purpose of the component and the AV cable. Therefore, when using the component/AV cable, you must check the right method for the TV output by setting the "Analog TV Out" menu. ➡ page 89
The image appears distorted on a TV.	<ul style="list-style-type: none">This phenomenon is caused by connecting to the TV with 4:3 aspect ratio.
You cannot view the image or hear the sound from a TV connected using the HDMI cable.	<ul style="list-style-type: none">Images will not be output from the HDMI jack if the material is copyright protected.

Connecting/Dubbing with other devices (Recorder, PC, Printer, etc)

Symptom	Explanation/Solution
You cannot dub correctly using the HDMI cable.	<ul style="list-style-type: none"> You cannot dub images using the HDMI cable.
You cannot dub correctly using the Component/AV (Video, Audio L/R) cable.	<ul style="list-style-type: none"> The Component/AV (Video, Audio L/R) cable is not connected properly. Make sure that the Component/AV (Video, Audio L/R) cable is connected to the proper jack, i.e. to the input jack of the device used for dubbing images from your camcorder. ➡ page 52 This HD camcorder provides the two-in-one component/AV cable that fits the purpose of the component and the AV cable. Therefore, when using the component/AV cable, you must check the right method for the TV output by setting the "Analog TV Out" menu. ➡ page 89
Printouts cannot be made using a PictBridge printer.	<ul style="list-style-type: none"> Your printer may not print images edited on a computer or recorded using other device. This is not an error.

Connecting to a computer

Symptom	Explanation/Solution
The computer does not recognize your HD camcorder.	<ul style="list-style-type: none"> Disconnect the USB cable from the computer and camcorder, restart the computer, then connect it again correctly.
Cannot play a movie file properly on a Windows computer.	<ul style="list-style-type: none"> A video codec is needed to play the file recorded on your HD camcorder. Install or run the built-in edit software (Intelli-studio). ➡ pages 109-111 Make sure you insert the connector in the correct direction, and connect the USB cable to the USB jack on your camcorder firmly. Disconnect the cable from the computer and camcorder, restart the computer. Connect it again properly. To play back an HD video file, a computer with better specification is required. Check a computer with recommended specification. ➡ page 106
Intelli-studio does not function properly.	<ul style="list-style-type: none"> Exit the Intelli-studio application, and restart the Windows computer. The built-in software on your camcorder, Intelli-studio is not Macintosh compliant. Set "PC Software" to "On" in the Settings menu. ➡ page 88 According to your computer type, the Intelli-studio program may not automatically run. In this case, open the desired CD-ROM drive that has the Intelli-studio program in My Computer and run iStudio.exe.

troubleshooting

Symptom	Explanation/Solution
The image or sound on your camcorder is not played on your computer properly.	<ul style="list-style-type: none">• Movie playback or sound may stop temporarily depending on your computer. The movie or sound copied to your computer is not affected.• If your camcorder is connected to a computer that does not support Hi-speed USB (USB2.0), the image or sound may not be played correctly. The image and sound copied to your computer are not affected.
The playback screen is paused or distorted.	<ul style="list-style-type: none">• Check the system requirements to play a movie. ➡page 106• Exit other all applications running on the current computer.• If a recorded movie is played on your camcorder connected to a computer, the image may not play smoothly, depending on the transfer speed. Please copy the file to your PC, and then play it back.

Overall operations

Symptom	Explanation/Solution
The date and time are incorrect.	<ul style="list-style-type: none">• Has the camcorder been left unused for a long period of time? The backup built-in rechargeable battery may be discharged. ➡page 26
The camcorder does not turn on, or does not operate by pressing any button.	<ul style="list-style-type: none">• Remove the battery pack or unplug AC power adaptor, and connect the power supply to the camcorder again before turning it on.
Lens cover is not closed even when the power is off.	<ul style="list-style-type: none">• Lens cover is not closed if the power is not turned off by using the Power (⏻) button. Turn the power off by using the Power (⏻) button for about 1 second.

Menu

Symptom	Explanation/Solution	
Menu items are grayed out.	<ul style="list-style-type: none"> You cannot select grayed items in the current recording/playback mode. Menu, quick menu, and Flash (⚡) button cannot be used in EASY Q mode. The following functions cannot be used during video recording: “Video Resolution,” “Video Quality,” “Photo Resolution,” “Photo Sharpness,” “Fader,” “Cont. Shot,” “Digital Zoom,” “Self Timer,” “Time Lapse REC,” “Storage Type (Q.MENU).” There are some functions you cannot activate simultaneously. The following list shows examples of unworkable combinations of functions and menu items. 	
	Cannot use	Because of the following settings
	“iSCENE”	“Aperture : Manual,” “Shutter : Manual”
	Manual Aperture	“Shutter : Manual,” “iSCENE”
	Manual Shutter	“Aperture : Manual,” “iSCENE”
	“Fader,” “Video Resolution,” “Video Quality,”	“Time Lapse REC”

specifications

Model names: HMX-H100N/HMX-H104BN/HMX-H105BN/HMX-H106SN

System	
Video signal	NTSC
Picture compression format	H.264 (MPEG-4.AVC)
Audio compression format	AAC (Advanced Audio Coding)
Image device	1/4.1" CMOS (Complementary Metal-Oxide Semiconductor) (Max: 3.05M pixels / Effective: 2.89M pixels)
Lens	F1.8 10x (Optical), 10x (Digital) Electronic zoom lens
Focal length	3.3~33mm
Filter diameter	Ø37
LCD screen	
Size/dot number	2.7inch wide 230k
LCD screen method	TFT LCD
Connectors	
Composite output	1Vp-p (75Ω terminated)
Component output	Y: 1Vp-p, 75Ω, Pb/Pn, Cb/Cr: 0.350Vp-p, 75Ω
HDMI output	C type connector
Audio output	-7.5dBs (600Ω terminated)
USB output	Mini-B type connector
General	
Power source	DC 8.4V, Lithium Ion battery pack 7.4V
Power source type	Lithium Ion battery pack, Power supply (100V~240V) 50/60Hz
Power consumption (Recording)	3.5W (LCD on)
Operating temperature	32°F~104°F (0°~40°C)
Storage temperature	-4°F ~ 140°F (-20°C ~ 60°C)
External dimensions (WxHxD)	2.32 inches (59 mm) x 2.40 inches (60.9mm) x 5.06 inches (128.6 mm)
Weight	0.78 lb (352g, 12.42 oz) (Except for Lithium Ion battery pack)
Internal MIC	Omni-directional stereo microphone
Remote control	Indoors: greater than 15 m (49 ft) (straight line), Outdoors: about 5 m (16.4 ft) (straight line)
Storage media	SSD built-in memory, memory card (SD/SDHC)

- These technical specifications and design may be changed without notice.

warranty

SAMSUNG LIMITED WARRANTY

SAMSUNG Electronics America Inc. (SEA), warrants that this product is free from defective material and workmanship.

SEA further warrants that if product fails to operate properly within the specified warranty period and the failure is due to improper workmanship or defective material, SEA will repair or replace the product at it's option.

All warranty repairs must be performed by a SEA authorized service center. The name and address of the location nearest you can be obtained by calling toll free: 1-800-SAMSUNG (1-800-726-7864).

Labor

90 days carry-in

Parts

1 year

On carry-in models, transportation to and from the service center is the customer's responsibility.

The original dated sales receipt must be retained by the customer and is the only acceptable proof of purchase. It must be presented to the authorized service center.

EXCLUSIONS (WHAT IS NOT COVERED)

This warranty does not cover damage due to accident, fire, flood and/or other acts of God; misuse, incorrect line voltage, improper installation, improper or unauthorized repairs, commercial use, or damage that occurs in shipping. Exterior and interior finish, lamps, and glass are not covered under this warranty.

Customer adjustments which are explained in the instruction manual are not covered under the terms of this warranty.

This warranty will automatically be voided for any unit found with a missing or altered serial number. This warranty is valid only on products purchased in the United States and Puerto Rico.

Some States do not allow the exclusions or limitations of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.



If you have any questions or comments relating to Samsung products, please contact the SAMSUNG customer care center Samsung Electronics America, inc.

1-800-SAMSUNG (726-7864)
www.samsung.com/us



RoHS compliant

Our product complies with "The Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment", and we do not use the 6 hazardous materials- Cadmium(Cd), Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr +6), Poly Brominated Biphenyls (PBBs), Poly Brominated Diphenyl Ethers(PBDEs)- in our products.